VEKSLER, V.I.

Mechanism underlying secondary ion emission. Izv. AN Uz. SSR. Ser. Fiz.-mat. nauk 8 no.2:64-68 '64. (MIRA 17:9)

1. Tashkentskiy gosudarstvennyy universitet imeni Lenina.

VEKSLER, V.I.

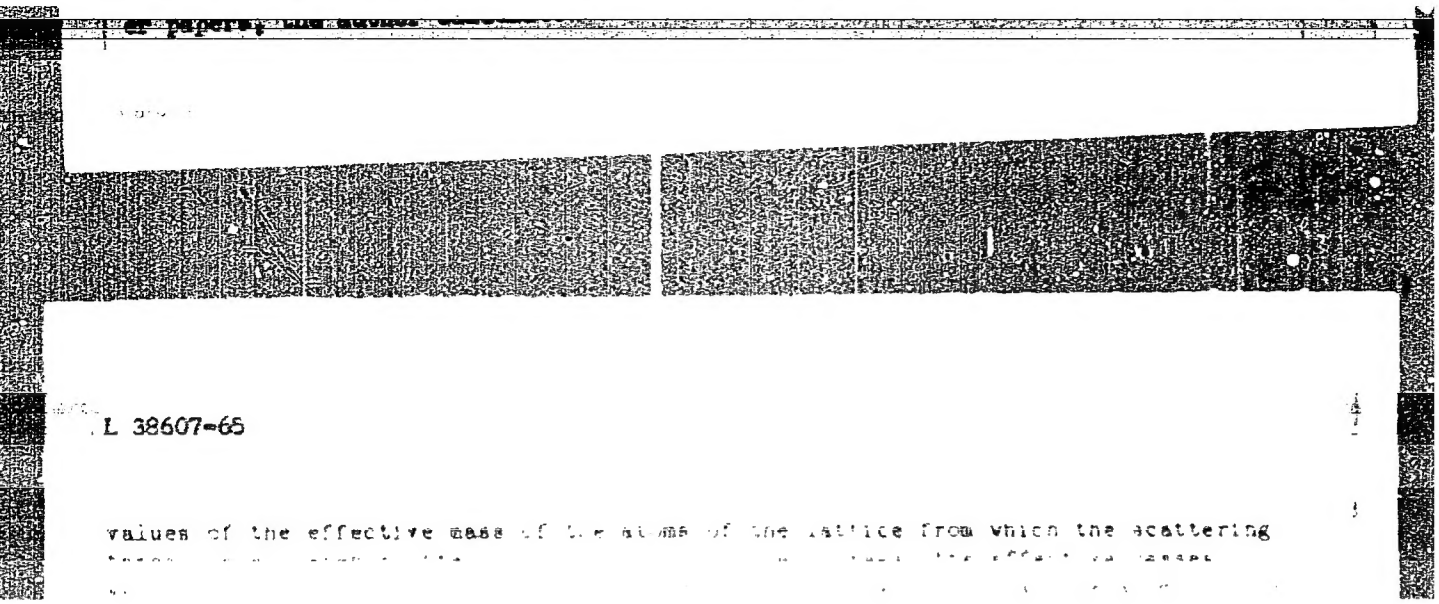
Some angular regularities of the scattering of slow alkali metal ions on a molybdenum surface. Fiz. tver. tela 6 no.8: 2229-2237 Ag '64. (MIRA 17:11)

1. Tashkentskiy gosudarstvennyy universitet imeni Lenina.

L 38607-65 EWT(1)/T/EEC(b)-2 P1-4 IJP(c) GG

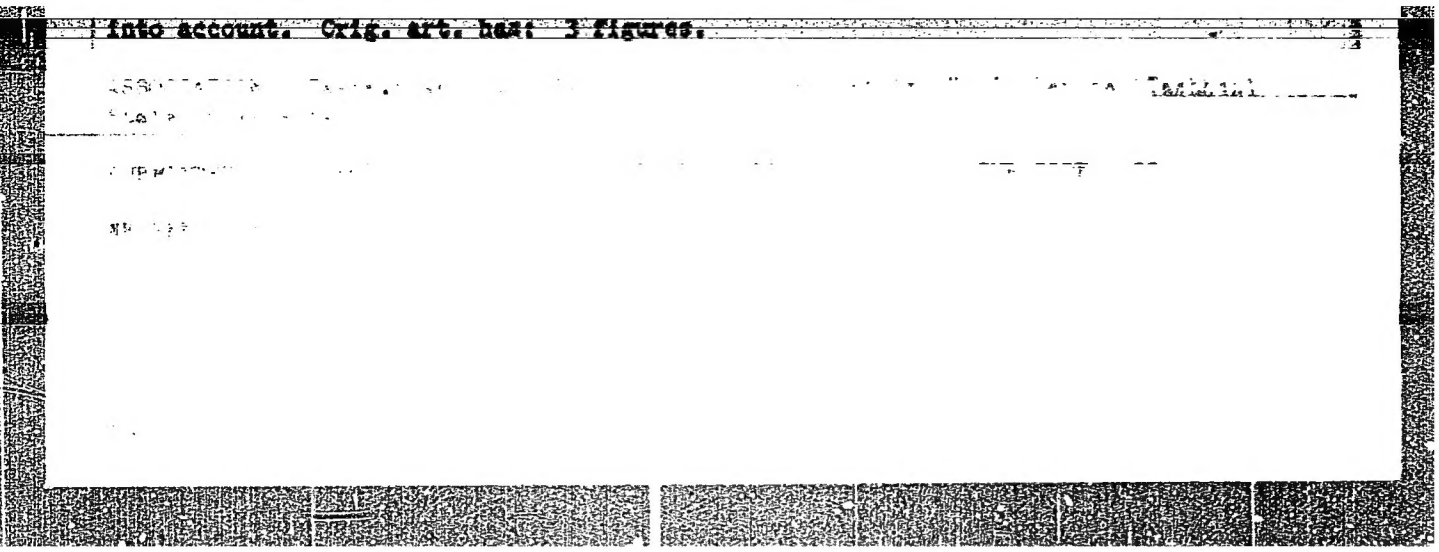
ACCESSION NR: AP5005312 UR/0181/65/007/002/0629/0633

TITLE: On the influence of [illegible]
of slow positive ions



L 38607-65

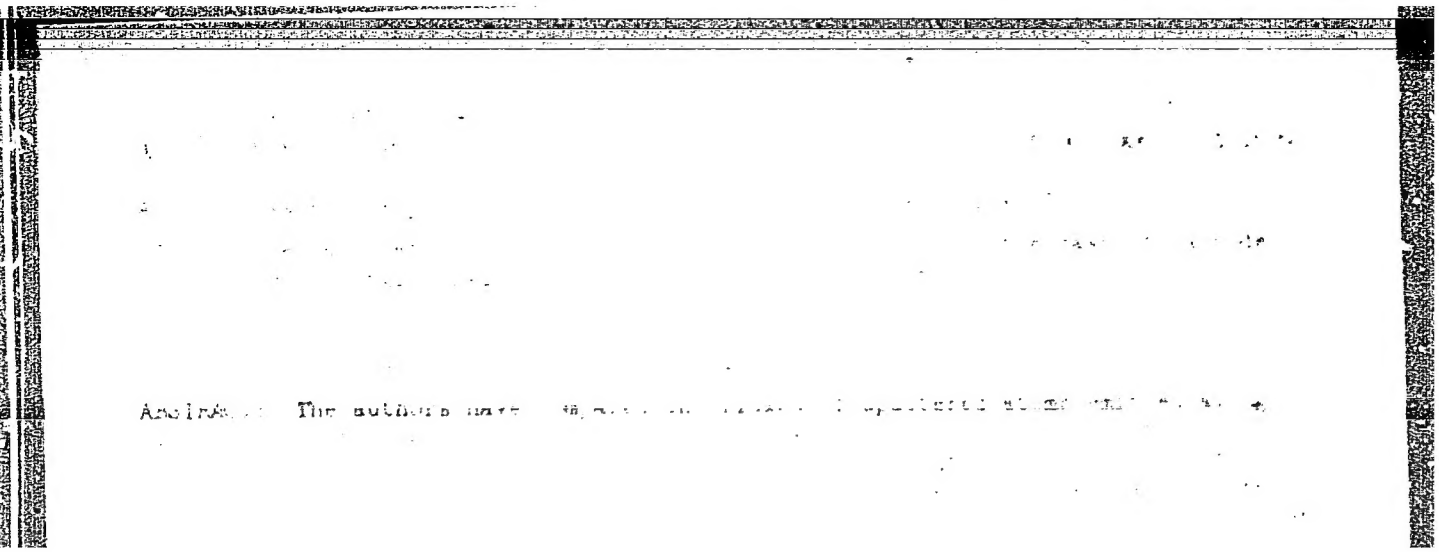
values of the effective mass of the atoms of the lattice from which the scattering



VEKSLER, V.I.

Effect of the magnetic structure of ferrites on the [illegible] of slow positive ions. Fiz. tver. tela [illegible] 1 no.5. (MIRA 12:6)

1. Fizicheskiy [illegible] universitet imeni Lenina.

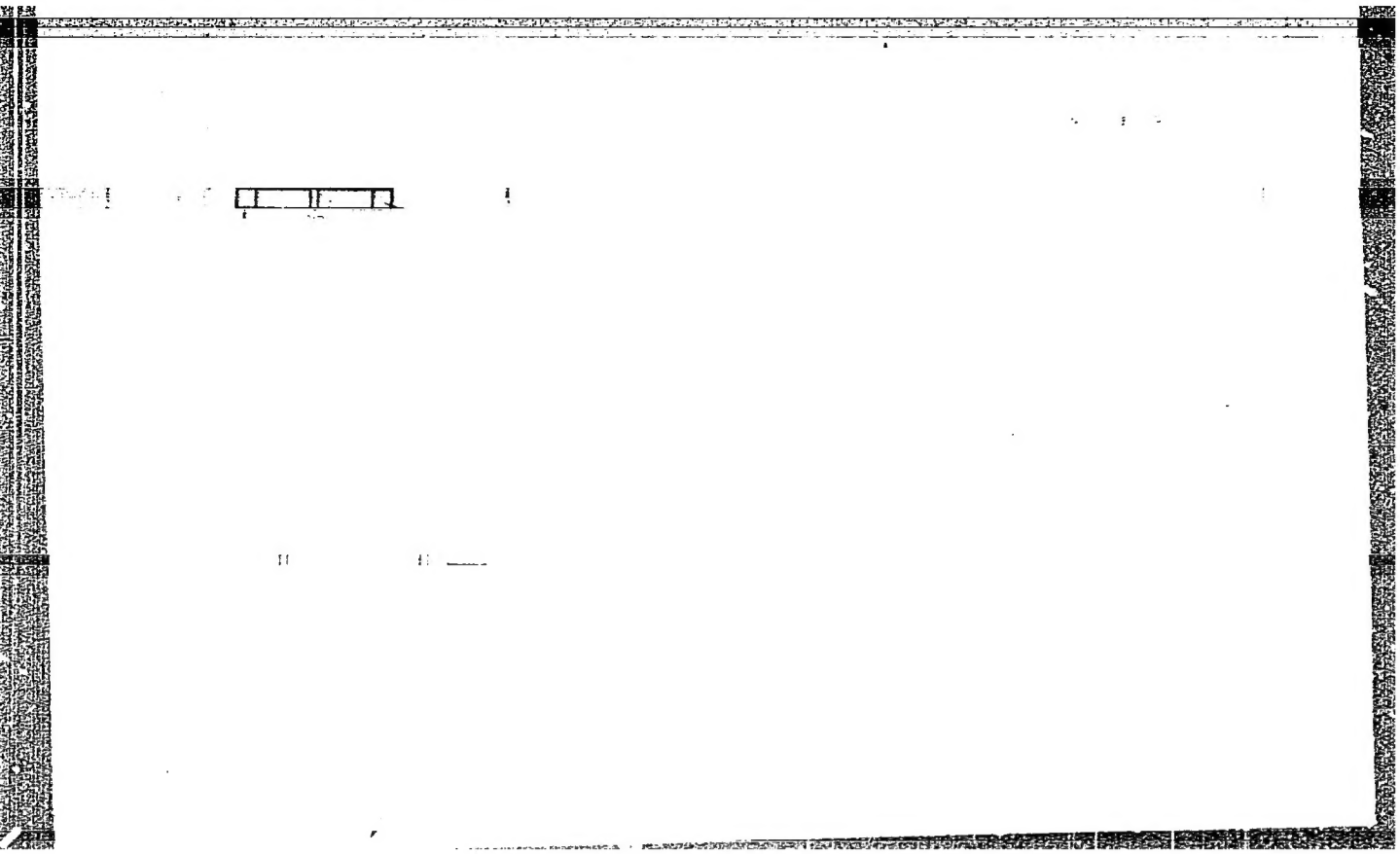


[redacted]

pared with the flux in the (111) direction. The results are compared with those obtained by others and the various discrepancies are briefly discussed. "The au-

[redacted] Prof Morrow for supplying the single crystal samples." Orig. art.

has: 5 figures and 2 formulas.



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859310003-1"

L 1569-66 EWT(l)/T IJP(c) GG

ACCESSION NR: AP5019220 UR/0056/65/049/001/0090/0096

AUTHOR: Veksler, V. I.

TITLE: Anisotropy of energy spectra of slow alkali-metal ions scattered from single-crystal targets

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 1, 1965, 90-96

TOPIC TAGS: potassium, rubidium, cesium, molybdenum, tungsten, ion bombardment, ion energy, ion interaction, crystal lattice structure, ionization spectrum

ABSTRACT: The authors investigated the energy spectra of Cs^+, Rb^+, and K^+ ions scattered by incandescent single-crystal tungsten and molybdenum at various angles (X) between the primary beam and the target surface. The target temperature was 1500--1600K, and the primary ion energies were low enough (100--260 ev) to prevent noticeable sputtering of the target material. The apparatus, experimental technique, and the method of determining the maximum energy of the scattered ions were described earlier (FTT v. 6, 2229, 1964). The total yield of the fast scattered ion group exhibited no noticeable dependence on the crystallographic direction, but both the shape of the energy spectrum and the maximum energy (W_m) turned out to be strongly dependent on the orientation of the primary beam with respect to the target

Card 1/2

L 2569-66

ACCESSION NR: AP5019220

6

crystal lattice. The maximum of the plot of W_m vs. X shifts to larger values of X with decrease in the scattering angle (which is kept fixed in the experiment). The results are interpreted from the point of view of the hypothesis that scattering involves a simultaneous strong interaction of the primary ion with a group of lattice atoms, and that the energy maxima correspond to scattering from crystal plane with maximum atomic packing density or along the most closely packed directions on the target surface. The relative roles of these collisions are shown, by calculating the different collision probabilities, to depend mainly on the size of the primary ion. The results have also been used to estimate the scattering potential for interaction of alkali-metal ions with atoms of tungsten and molybdenum, which turns out to be closer to the Thomas-Fermi-Firsov potential than to the Thomas-Fermi-Dirac potential. "The author thanks his student L. Neymark for assistance in the experiment." Orig. art. has: 5 figures and 4 formulas. 44,55

ASSOCIATION: Tashkentskiy gosudarstvennyy universitet (Tashkent State University)

SUBMITTED: 10Feb65 ENCL: 00 SUB CODE: SS, NP 44,55

NR REF SOV: 009 OTHER: 006

Card 2/2

VEKSLER, V.I.

Anisotropy of the energy spectra resulting from the scattering of slow ions of alkali metals by single-crystal targets. Zhur.eksp.i teor.fiz. 49 no.1:90-96 Jl '65. (MIRA 18:8)

1. Tashkentskiy gosudarstvennyy universitet.

ASHMYANSKIY, R.A.; BEN'YAMINOVICH, M.B.; VEKSLER, V.I.

Characteristics of focusing atomic collisions in the cathode sputtering of tungsten and molybdenum single crystals. Fiz. tver. tela 7 no.6:1623-1629 Je '65. (MIRA 18:6)

1. Gosudarstvennyy universitet imeni Lenina, Tashkent.

CA

Halogen replacement reactions in α-halocarbonyl compounds. III. Reactions of α-chlorobenzyl methyl ketone and 1-chloro-1-(p-tolyl)-2-propanone with salts of carboxylic acids. V. I. Yeksler (Zhdanov State Univ., Leningrad). *Zhur. Obshchei Khim.* (J. Gen. Chem.) **20**, 1285–8(1950); cf. *C.A.* **44**, 10504.—Halo ketones, ArCHXAc, in reactions with salts of carboxylic acids give equal amts. of normal and abnormal substitution products, independent of the nature of the halogen, X. Chlorination of $PhCH_2COMe$ in cold $CHCl_3$ gave 20% *PhCHClAc*, b_4 99–101°, d_4^{15} 1.160, d_4^{20} 1.177, d_4^{25} 1.1585, $n_\alpha^{15.7}$ 1.5339, $n_\beta^{15.7}$ 1.5504 (yields BzOH on exposure to air); heating this (15 g.) with 20 g. BzOK in 120 ml. abs. EtOH 10 hrs. gave incomplete reaction, and only after 80 hrs. was all the Cl converted, giving 8.5 g. *phenylacetylcarbinol benzoate*, m. 52–3°, and 1 g. *methylbenzoylcarbinol benzoate*, m. 107.5–8° (insol. in Et_2O). *p*-MeC$_6$H$_4$Ac (23 g.) with SO_2Cl_2 in CCl_4 at 30–50° gave 12 g. *p*-*MeC$_6$H$_4$CHClAc*, b_5 118–20°; d_4^{15} 1.129, d_4^{25} 1.132, n_α^{25} 1.5302, which (10.5 g.) boiled 1.5 hrs. with 10.5 g. KOAc in 70 ml. abs. EtOH gave 5.6 g. *p-tolylacetylcarbinol acetate*, b_5 136–9°, n_α^{25} 1.5053, d_4^{25} 1.097, d_4^{15} 1.080), and *admixed*, *unsepd. p-tolylmethylcarbinol acetate* (a mixt. analogous to that secured with the Br ketone.) IV. **Mechanism of the reactions of halogen replacement in α-bromo and α-chloro ketones in reactions with salts of carboxylic acids.** *Ibid.* 1289–303.—$(PhCH_2)_2CO$ (53 g.) with 13 ml. Br in CCl_4 with ice cooling in a CO_2 stream gave 51% *PhCHBrCOCH$_2$Ph*, m. 48–8.5° (from abs. EtOH). This (14 g.) heated on a steam bath with 3 moles (15 g.) KOAc in AcOH 3 hrs. gave undistillable *PhCH(OAc)COCH$_2$Ph*, which, treated with MeMgBr and boiled 4 hrs. in Et_2O, gave *1,3-diphenyl-2-methyl-1,3-propanediol*, m. 86.5–7.0° (from CCl_4–C_6H_6 and petr. ether) (*benzene adduct*, softening at 60.5°). If the reaction with KOAc is done in EtOH it is complete in 15 min. and the product may be distd., although with difficulty; it b_5 195–5.5° n_α^{25} 1.5486, n_β^{25} 1.5661, d_4^{25} 1.129, d_4^{20} 1.147, and gives the same glycol as above. Part of the glycol prepn. refused to crystallize in both cases, and oxidation of the liquid portion with CrO_3 gave only $PhCH_2COMe$ and BzH, the same being obtained from the cryst. glycol. The Br ketone with BzOK in EtOH (2 hrs. at 0°) gave only *PhCH(OBz)COCH$_2$Ph*, m. 82.5–3.5° (from CCl_4). Its isomer was obtained by heating $BzCHBrCH_2Ph$ (m. 55°) with BzOK 10.5 hrs. in EtOH; the product, *BzCH(OBz)-CH$_2$Ph*, m. 109.5–10.0° (from EtOH). The mechanism of reaction of bromo(halo) ketones with salts of carboxylic acids or with alkalies is analogous, and the reaction of the α-halo ketones proceeds apparently by addn. of the at-tack' Ag neg. ion on the C atom of the carbonyl group with displacement of the halogen and giving the product of normal, unisomerized structure. The extensive literature on the reactions of halo ketones is reviewed (39 references).

G. M. Kosolapoff

VEKSLER, V. I.

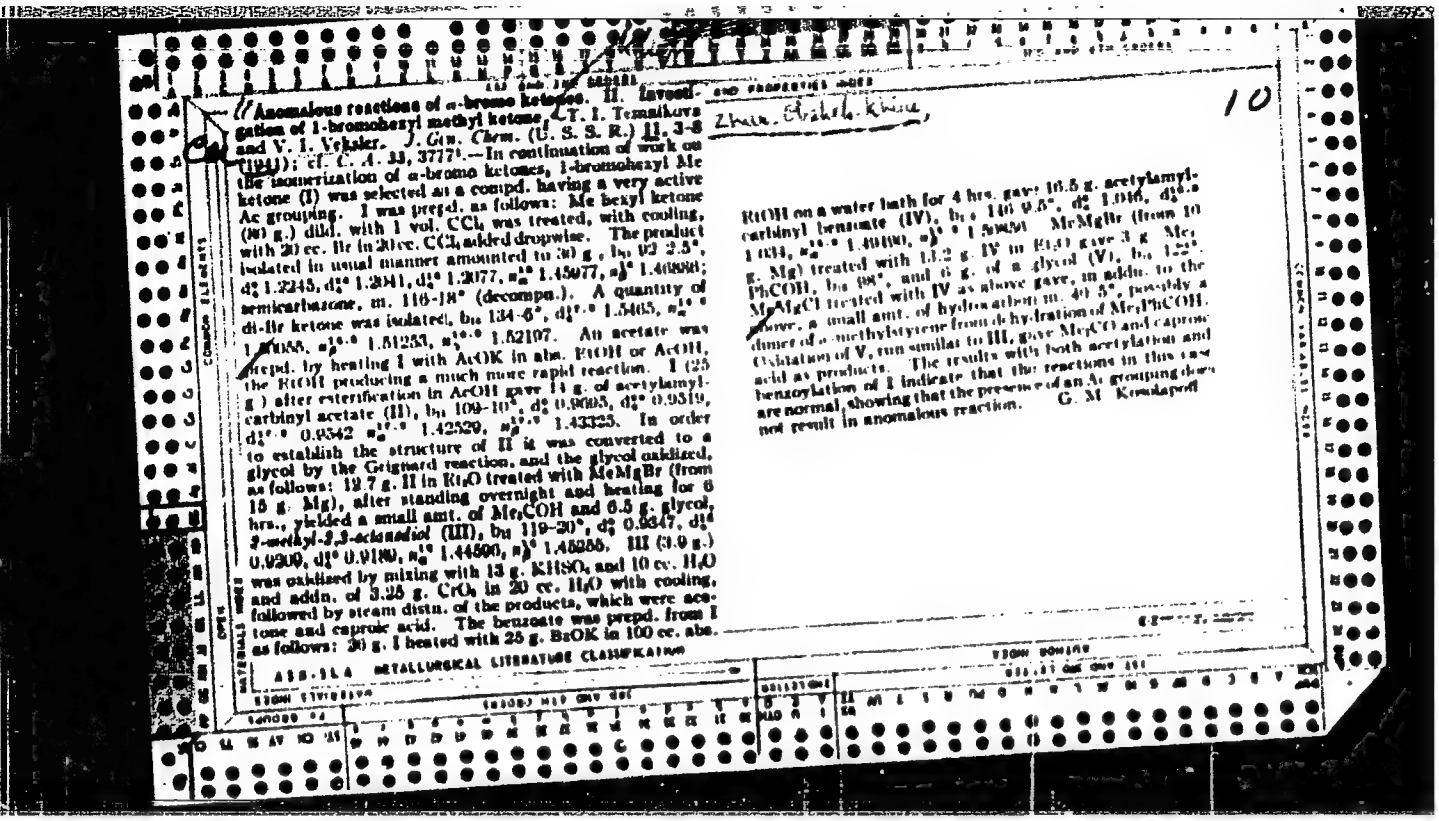
USSR/Chemistry - Ketones, Bromo-Reactions, Anomalous Jul 49

"The Anomalous Reactions of Alpha-Bromoketones: III, Research on Alpha-Bromo-n-Tolylacetone (I)," T. I. Temnikova, V. I. Veksler, Chair of Structure of Org Compounds, Leningrad Ord of Lenin State U imeni A. A. Zhdanov, 6 pp

"Zhur Obshch Khim" Vol XIX, No 7 19, 1949.

Chief product of reaction of I with potassium acetate was shown to be acetic ester of n-tolylacetylcarbinol, with only a small part of reaction accompanied by molecular rearrangement with formation of isomeric ester from methyl-n-tolyl-carbinol. Comparison of these results with those of reaction of potassium acetate with alpha-bromophenylacetone revealed that increased electron density in reaction zone results in a marked increase in reactive capacity of bromine in its interaction with potassium acetate, and a greatly decreased quantity of anomalous product of reaction. Submitted 16 Feb 48.

PA 2/50T54



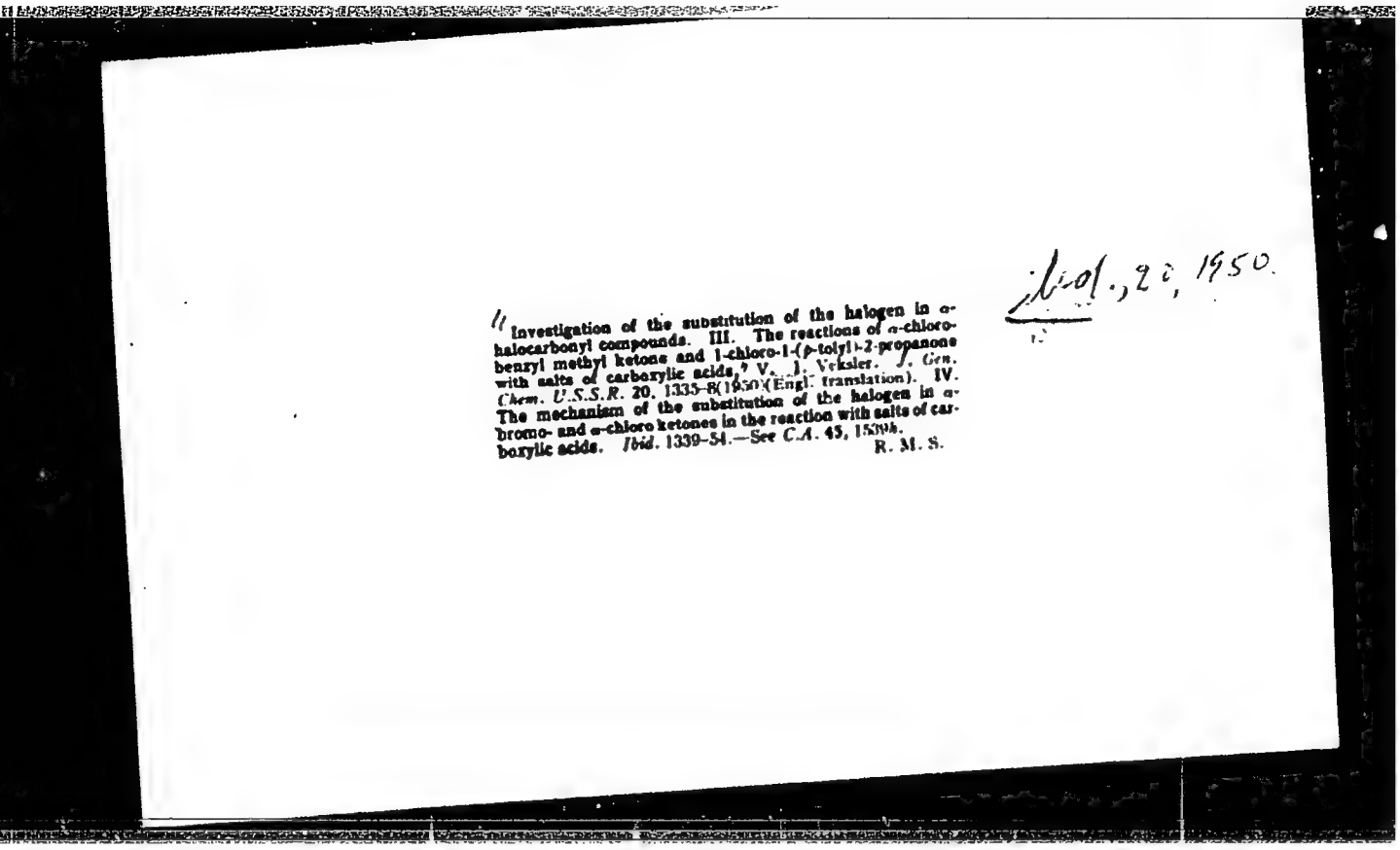
"Anomalous reactions of α-bromo ketones. II. Investigation of 1-bromohexyl methyl ketone. T. I. Temnikova and V. I. Yakubov. *J. Gen. Chem.* (U. S. S. R.) 11, 3-8 (1941); cf. C. A. 33, 3777⁹.—In continuation of work on the isomerization of α-bromo ketones, 1-bromohexyl Me ketone (I) was selected as a compd. having a very active Ac grouping. I was prepd. as follows: Me hexyl ketone (80 g.) dild. with 1 vol. CCl_4 was treated, with cooling, with 20 cc. Br in 20 cc. CCl_4 added dropwise. The product isolated in usual manner amounted to 80 g., b_{11} 92-3.5°, d_4^{20} 1.3245, d_4^{20} 1.2941, d_4^{15} 1.2077, n_D^{20} 1.45077, n_D^{15} 1.46898; semicarbazone, m. 116-18° (decompn.). A quantity of di-Br ketone was isolated, b_{11} 134-6°, $d_4^{17.5}$ 1.5465, $n_D^{17.5}$ 1.49055, $n_D^{16.5}$ 1.51253, $n_D^{16.5}$ 1.52197. An acetate was prepd. by heating I with AcOK in abs. EtOH or AcOH, the EtOH producing a much more rapid reaction. I (25 g.) after esterification in AcOH gave 14 g. of acetylamylcarbinyl acetate (II), b_{11} 109-10°, d_4^{20} 0.9095, d_4^{20} 0.9519, $d_4^{17.5}$ 0.9542 $n_D^{17.5}$ 1.42529, $n_D^{15.5}$ 1.43325. In order to establish the structure of II it was converted to a glycol by the Grignard reaction, and the glycol oxidized, as follows: 12.7 g. II in Et_2O treated with MeMgBr (from 15 g. Mg), after standing overnight and heating for 6 hrs., yielded a small amt. of Me_2COH and 6.5 g. glycol, *2-methyl-2,3-octanediol* (III), b_{11} 119-20°, d_4^{20} 0.9347, d_4^{20} 0.9309, d_4^{15} 0.9189, n_D^{19} 1.44500, n_D^{15} 1.45288. III (3.9 g.) was oxidized by mixing with 13 g. $KHSO_4$ and 10 cc. H_2O and addn. of 3.25 g. CrO_3 in 20 cc. H_2O with cooling, followed by steam distn. of the products, which were acetone and caproic acid. The benzoate was prepd. from I as follows: 30 g. I heated with 25 g. BzOK in 100 cc. abs. EtOH on a water bath for 4 hrs. gave 16.5 g. acetylamylcarbinyl benzoate (IV), b_{11} 140-2.5°, d_4^{20} 1.016, $d_4^{15.5}$ 1.034, $n_D^{15.5}$ 1.49080, n_D^{15} 1.50050. MeMgBr (from 10 g. Mg) treated with 11.2 g. IV in Et_2O gave 3 g. Me_2PhCOH, b_{11} 98°, and 6 g. of a glycol (V), b_{11} 122°. MeMgCl treated with IV as above gave, in addn. to the above, a small amt. of hydrocarbon, m. 40-5°, possibly a dimer of α-methylstyrene from dehydration of Me_2PhCOH. Oxidation of V, run similar to III, gave MeCO and caproic acid as products. The results with both acetylation and benzoylation of I indicate that the reactions in this case are normal, showing that the presence of an Ac grouping does not result in anomalous reaction. G. M. Kosolapoff

VEKSLER, V. I.

"Studies of halogen substitutions in a-halocarbonyl compounds. IV. The mechanism of substitution of halogne in a-bromo- and a-chloroketones in reactions with salts of carboxylic acids." (p. 1289)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1950, Vol 20, No. 7.

Ibid., 20, 1950



Investigation of the substitution of the halogen in α-halocarbonyl compounds. III. The reactions of α-chlorobenzyl methyl ketone and 1-chloro-1-(*p*-tolyl)-2-propanone with salts of carboxylic acids. V. [. Veksler. *J. Gen. Chem. U.S.S.R.* 20, 1333–8(1950)(Engl. translation). IV. The mechanism of the substitution of the halogen in α-bromo- and α-chloro ketones in the reaction with salts of carboxylic acids. *Ibid.* 1339–54.—See *C.A.* 45, 1509h.
R. M. S.

Nov., 20, 1950.

VEKSLER, V.I.

.3

Chem

The behavior of ketones toward an ammoniacal solution of silver oxide. V. I. Veksler. *J. Gen. Chem. U.S.S.R.* 22, 1381–4(1952)(Engl. translation).—See *C.A.* 47, 6374g.

H. L. H.

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

ibid., 22, 1952.

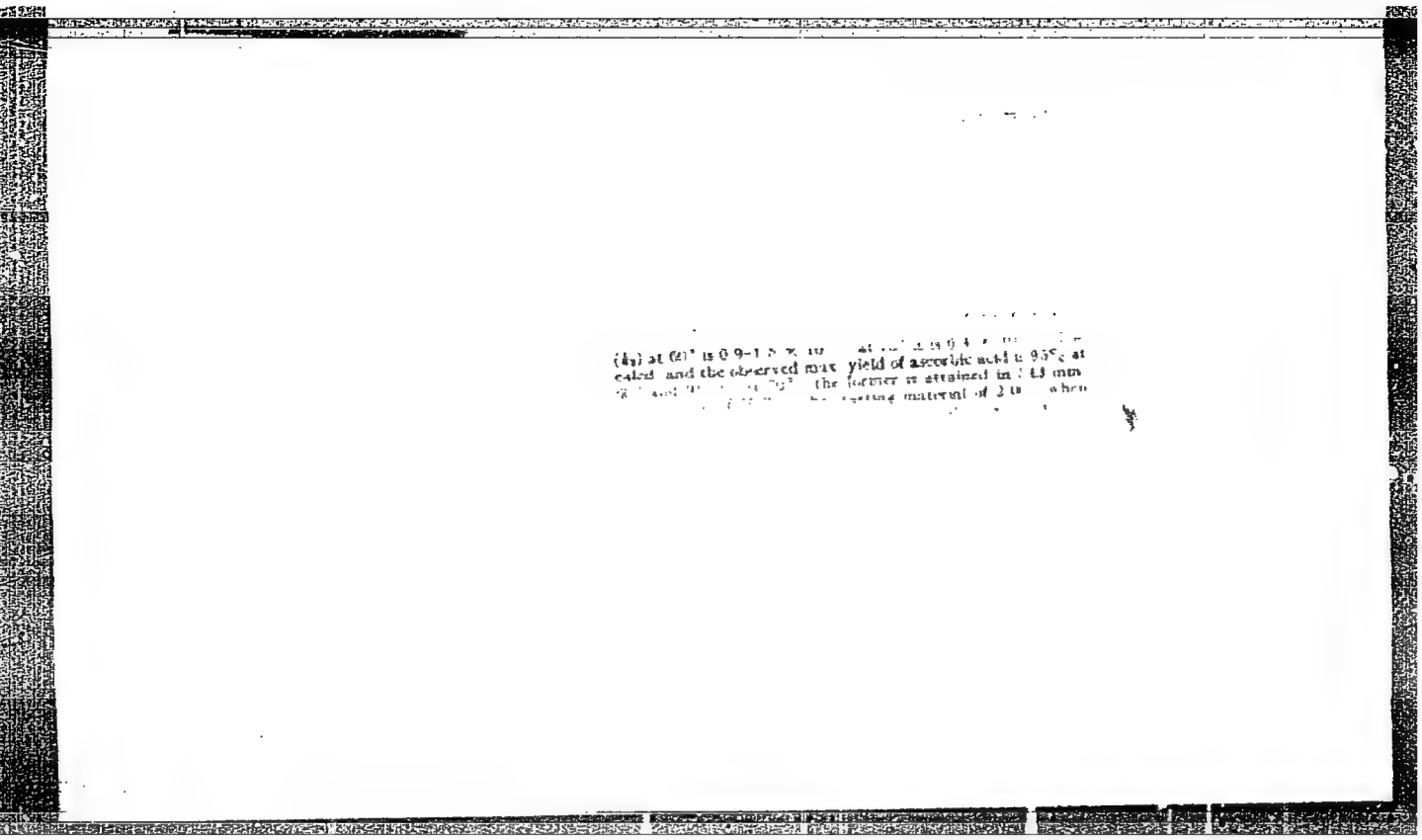
VEKSLER, V. I.

Tollens Reagent

"Reaction of ketones with Tollens reagent," Zhur. ob. khim. 22 no. 8, 1952

Ibid., 22, 1552.

Monthly List of Russian Accessions, Library of Congress, November 1952
UNCLASSIFIED.



(4a) at (2)° is 0.9–1.5 % to ... at ... 9.5°, at
calcd. and the observed max. yield of ascorbic acid is ... (the former is attained in ... 45 min.
... starting material of 2 to ... ohen

VERSLER, V. I.

USSR

The reaction of transformation of the hydrate of diacetone-2-keto-l-gulonic acid into l-ascorbic acid in nonalcoholic organic solutions. V. I. V[illegible] and G. F. [illegible] (F. [illegible] Sov. [illegible], Leningrad). Zhur. [illegible] Khim. 24, 21[illegible] (19[illegible]).—The relative rates of formation of ascorbic acid from diacetone-2-ketogulonic acid were detd. in the presence of $(CH_2Cl)_2$ with addn. of HCl-dioxane or HCl-Bu_2O. In all cases the reaction was considerably less rapid in comparison with solvents which contain EtOH. The assay of the reaction was ran by iodine titration in the presence of starch. G. M. Kosolapoff

VEKSLER, V. I.

4

Halogen replacement reactions in α-halo carbonyl compounds. V. The reactions of α-bromobenzyl methyl ketone with salts of trimethylacetic and salicylic acids. V. I. Veksler (F. Engel's Soviet Trade Inst., Leningrad). *Zhur. Obshchei Khim.* 25, 1556-9 (1955); cf. *C.A.* 45, 1530*h*. — To a warm soln. of 21 g. Me_3CCO_2K in 80 ml. dry EtOH was added 25 g. PhCHBrAc (pptn. of KBr is rapidly evident) and after heating on a steam bath to complete the reaction the mixt. yielded 9.5 g. *PhCH(O₂CCMe₃)Ac*, b_6 124-30°, m. 74-4.2°; and a small amt. of a substance, b_6 160-75°, which was apparently *PhCOCH(O₂CCMe₃)Me*. Similarly BzCHBrMe gave largely *PhCOCH(O₂CCMe₃)-Me*, b_6 132-42°; this specimen was purer and solidified, m. 36-7°. Heating 25 g. PhCHBrAc with 25 g. Na salicylate in dry EtOH 5 hrs. gave a dark mass from which was isolated a colored solid, m. 123.5-5°, $C_{17}H_{16}O_4$, apparently *phenylacetylcarbinyl salicylate*, *methylacetylcarbinyl salicylate* could not be detected; the latter readily formed when Na salicylate was heated with BzCHBrMe in dry EtOH 10 hrs., m. 77-8°. G. M. Kosolapoff

AID P - 3577

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 14/20

Authors : Veksler, V. I. and G. Ye. Shaltyko

Title : Study of transformations of the hydrate of diacetone-2-keto-L-gulonic acid into L-ascorbic acid

Periodical : Zhur. prikl. khim., 28, 7, 761-765, 1955

Abstract : The course of the reaction is described in detail. Attention is called to the role of HCl, 70-80% of which is contained in the "solid" phase. Three tables, 5 references, 3 Russian (1948-1950).

Institution : None

Submitted : Jl 2, 1954

Veksler, V. I.

Category: USSR

B-9

Abs Jour: Zh--Kh, No 3, 1957, 7542

Author : Veksler, V. I. and Shaltyko, G. Ye.
Inst : Not given
Title : Investigation of the Rate of Conversion of 2-Keto-L-Gulonic Acid and of its Methyl Ester to L-Ascorbic Acid in Aqueous Media

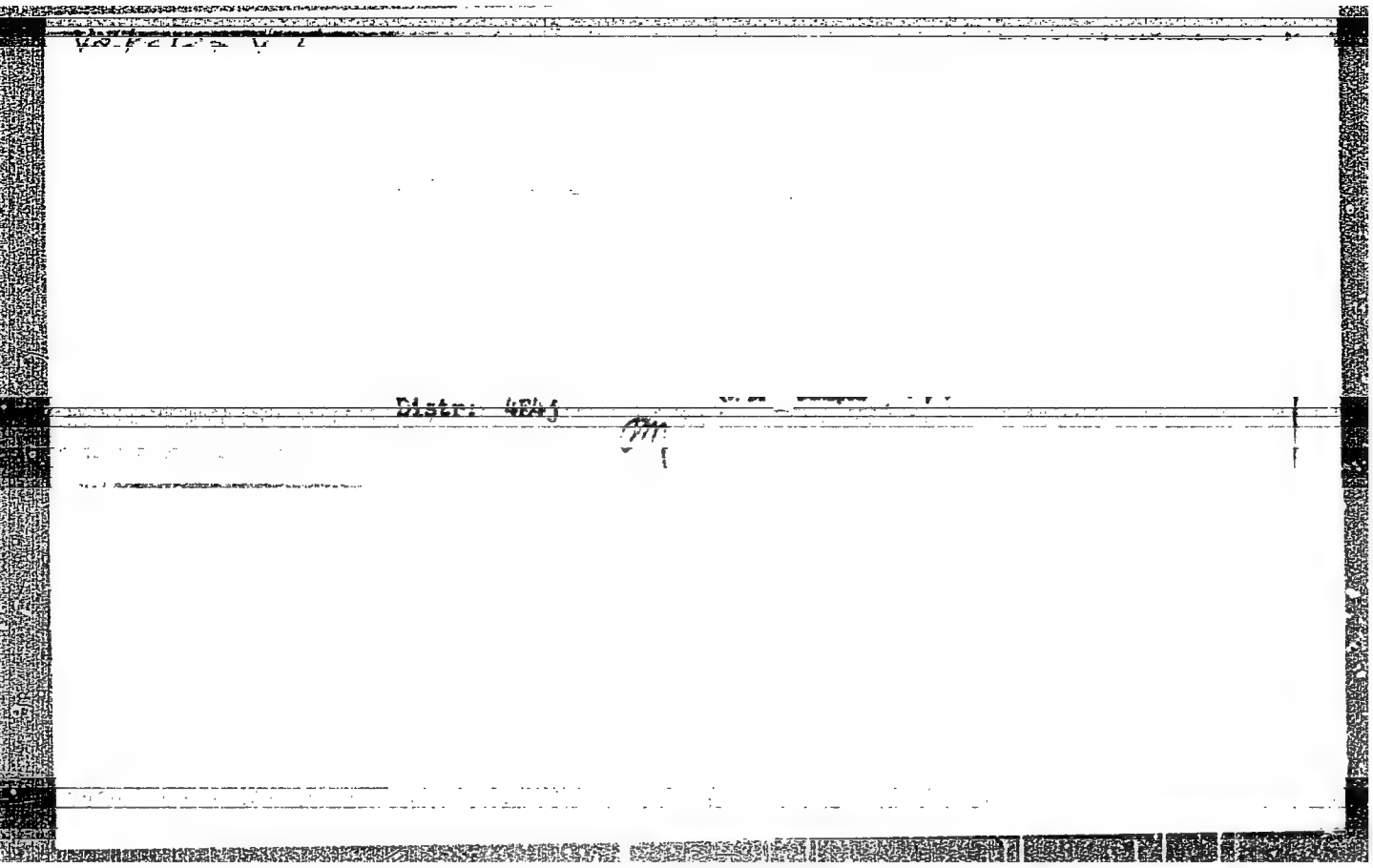
Orig Pub: Zh. Obshch. Khimii, 1956, Vol 26, No 5, 1456-1460

Abstract: The rate constants for the formation of L-ascorbic acid from 2-keto-L-gulonic acid (I), its methyl ester, and the hydrate of diacetone-2-keto-L-gulonic acid in aqueous solutions of 11.15 N HCl at 60° have been found to be 0.7×10^{-2}, 0.7×10^{-2}, and 1.2×10^{-2} min^{-1}, respectively; when the conversion of I is carried out in 50 percent acetone, the reaction constant is not affected.

Card : 1/1

-10-

Leningrad Inst. Soviet Trade



VEKSLER, V.I., kand.khimicheskikh nauk, dotsent, FREYMAN, A.A., kand. khimicheskikh nauk

Methods for determining the C-terminal amino acids of plant proteins. Trudy VNIIZ no.38:213-218 '60. (MIRA 15:12)

1. Leningradskiy institut sovetskoy torgovli imeni F.Engel'sa.
(Amino acids)

VEKSLER, V.I.; REZNICHENKO, M.S.; FREYMAN, A.A.

Determining C-terminal groups of vegetable proteins by the thiohydantoin method. Biokhimiia 25 no.1:124-128 Ja-F '60. (MIRA 13:6)

1. Chair of Chemistry, Institute of Soviet Trade, Leningrad.
(PROTEINS chem.)
(HYDANTOINS chem.)

VEKSLER, V.I.

Reaction of ketones with an ammonia solution of silver oxide. Part 3: Oxidation of desoxybenzoin. Zhur.ob.khim. 30 no.8:2647-2650 Ag '60. (MIRA 13:8)

1. Leningradskiy institut sovetskoy torgovli.
(Deoxybenzoin) (Silver oxide)

VEKSLER, V.I.

Synthesis of mercaptals of desoxyamino sugars. Zhur. ob. khim. 31 no.3:989-993 Mr '61. (MIRA 14:3)

1. Leningradskiy institut sovetskoy torgovli.
(Sugars)

VEKSLER, V.I.

Energy spectra of slow positive rubidium and cesium ions scattered by a molybdenum surface. Fiz. tver. tela 4 no.6:1419-1423 Je '62. (MIRA 16:5)

1. Tashkentskiy gosudarstvennyy universitet imeni V.I.Lenina.
(Ions—Scattering) (Rubidium) (Cesium)

VEKSLER, V. I.

Synthesis and study of aminodeoxy sugars. Part 3: 1,2-Cyclohexyliden-5-amino-5-deoxy-3-p-toluenesulfonyl-D-xylose. Zhur. ob. khim. 32 no.12:4060-4063 D '62. (MIRA 16:1)

1. Leningradskiy institut sovetskoy torgovli.

(Deoxy sugars)

VEKSLER, V.I.

Secondary emission of excited cesium atoms in the bombardment of molybdenum by positive cesium ions. Fiz. tver. tela 5 no. 10:2737-2746 O '63. (MIRA 16:11)

1. Tashkentskiy gosudarstvennyy universitet im. V.I. Lenina.

VEKSLER, V.I.; KOVALENKO, L.N.; MARKOVICH, A.V.

N-alkylation of aminodeoxy sugars. Zhur.ob.khim. 34 no.2:704-705 F '64. (MIRA 17:3)

1. Leningradskiy institut sovetskoy torgovli imeni Fr.Engel'sa.

[redacted], V.I.

Advances of the chemistry of aminocarboxy sugars. [illegible]
10.8:991-996 Ag '54.

1. Leningradskiy institut sovetskoy torgovli.

FREYMAN, A.A.; VEKSLER, V.I.; REZNICHENKO, M.S. [deceased]

Determination of C-terminal amino acid residues in plant proteins by the hydrazinolysis method. Biokhimiia 29 no.4: 583-585 Jl-Ag '64. (MIRA 18:6)

1. Kafedra khimii Instituta sovetskoy torgovli imeni Fr. Engel'sa, Leningrad.

VEKSLER, V.I.; FILIPPOVA, A.I.

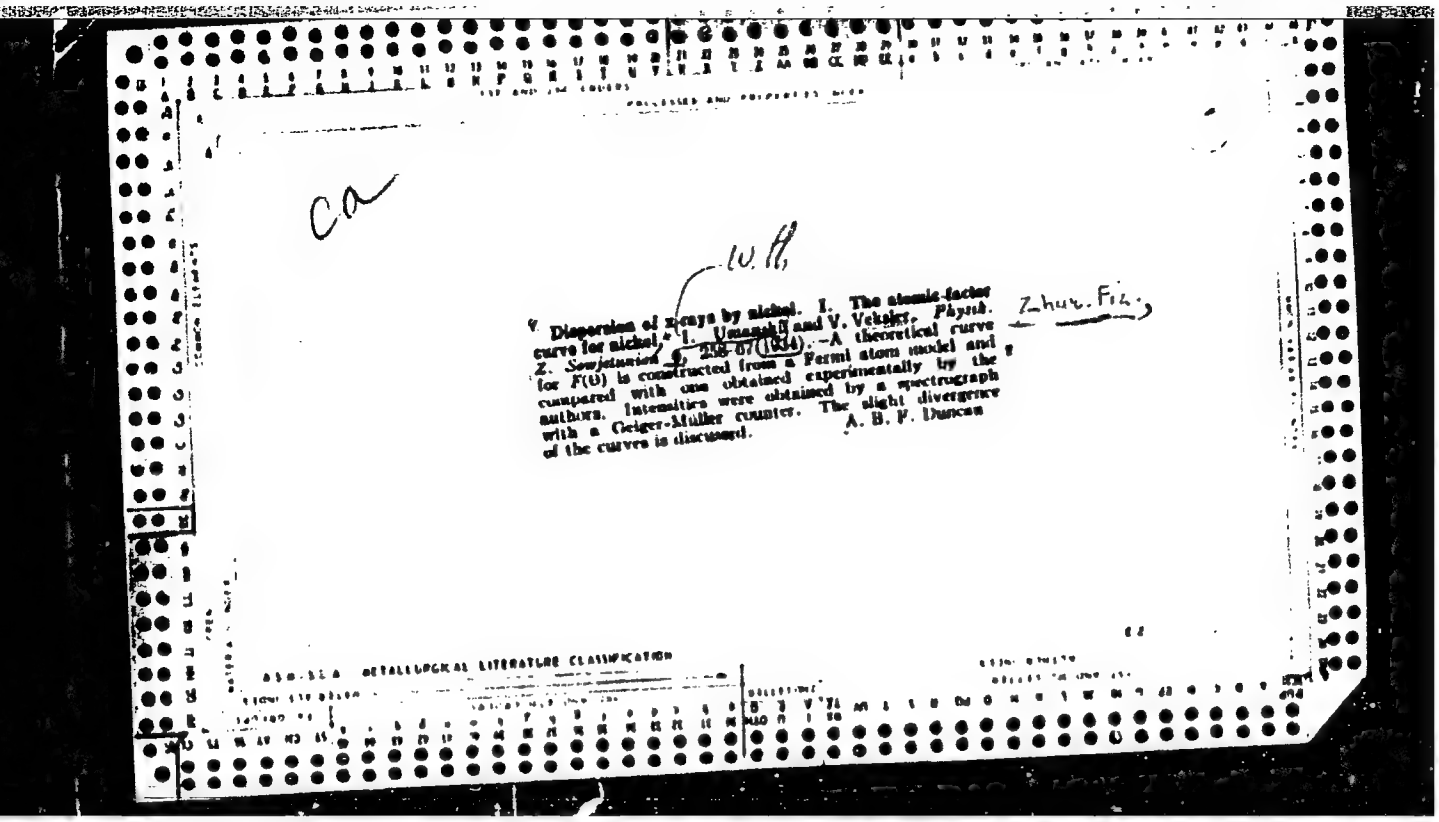
Synthesis and study of aminodeoxy sugars. Part 4: Infrared spectra of some derivatives of 6-amino-6-deoxy-D-galactose and 5-amino-5-deoxy-D-xylose. Zhur.ob.khim. 33 no.6:2030-2033 Je '63. (MIRA 16:7)

1. Leningradskiy institut sovetskoy torgovli i Leningradskiy nauchno-issledovatel'skiy institut antibiotikov.
(Galactose--Absorption spectra)
(Xylose--Absorption spectra)

VEKSLER, V.I.; MARKOVICH, A.V.; KOVALENKO, L.N.

Aminodeoxy carbohydrates, derivatives of tetrasubstituted ammonium with long-chain alkyl radicals. Zhur. ob. khim. 35 no.8:1504-1505 Ag '65. (MIRA 18:8)

1. Leningradskiy institut sovetskoy torgovli.

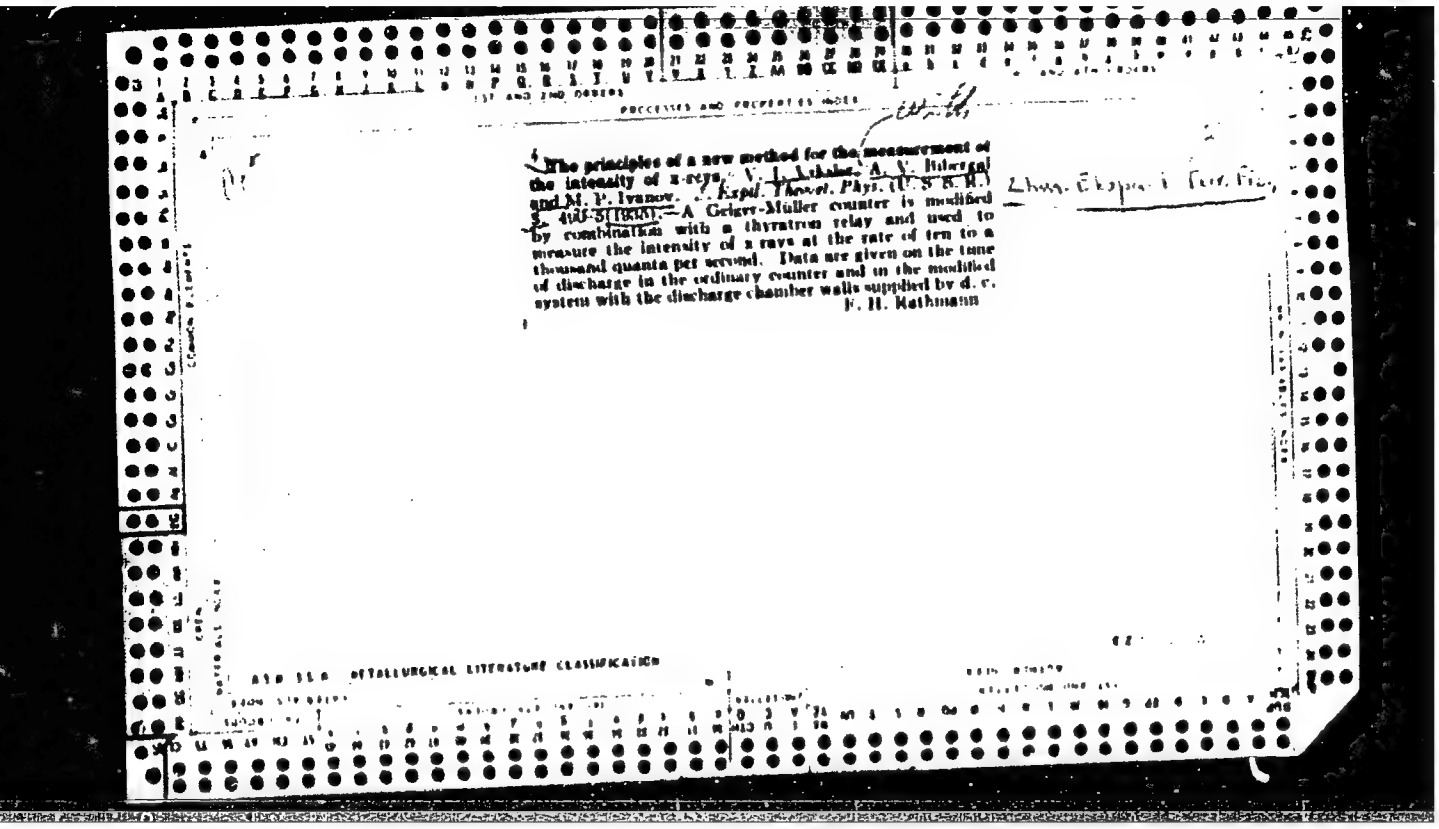


Ca

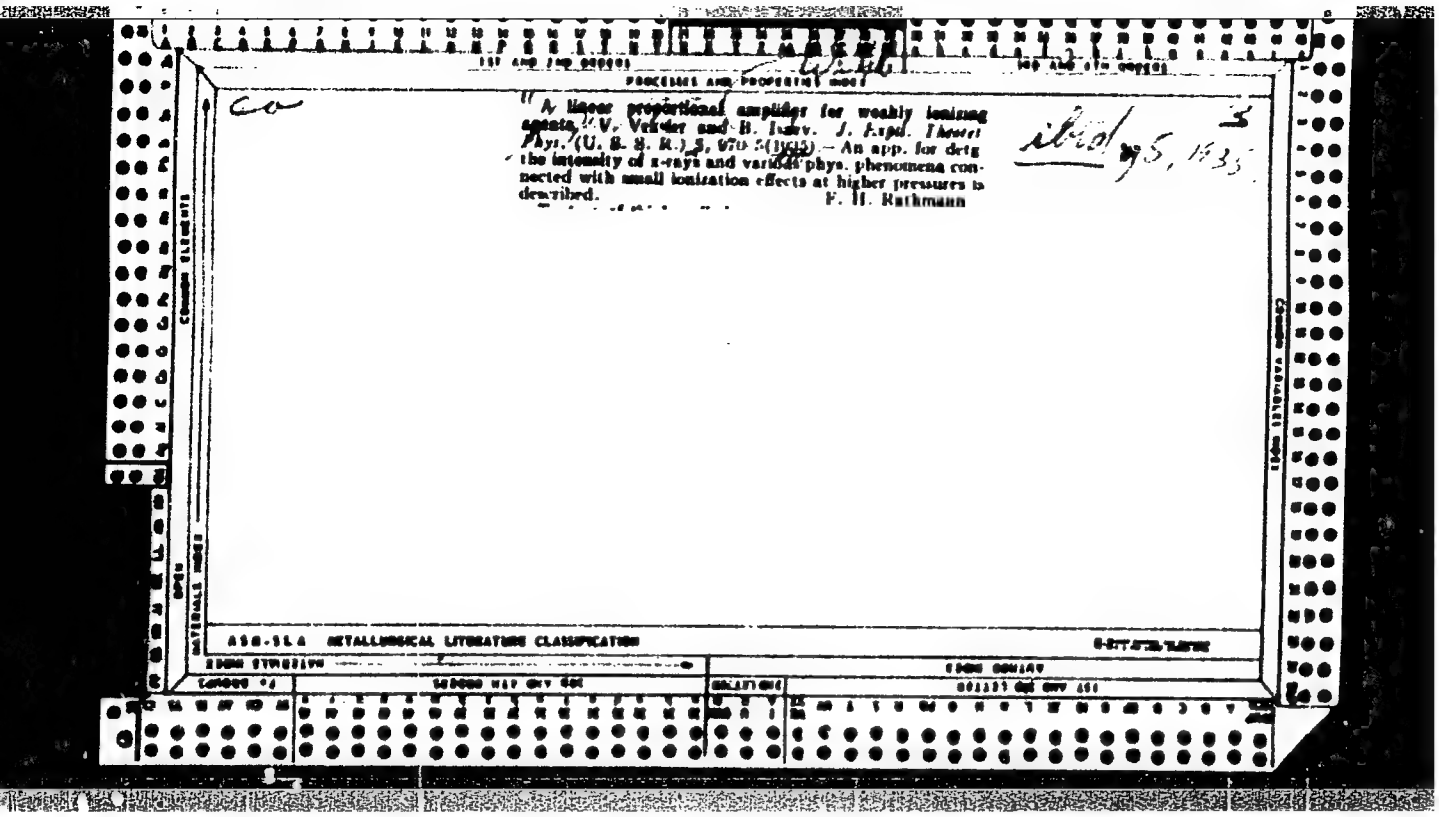
W. H.

Zhur. Fiz.

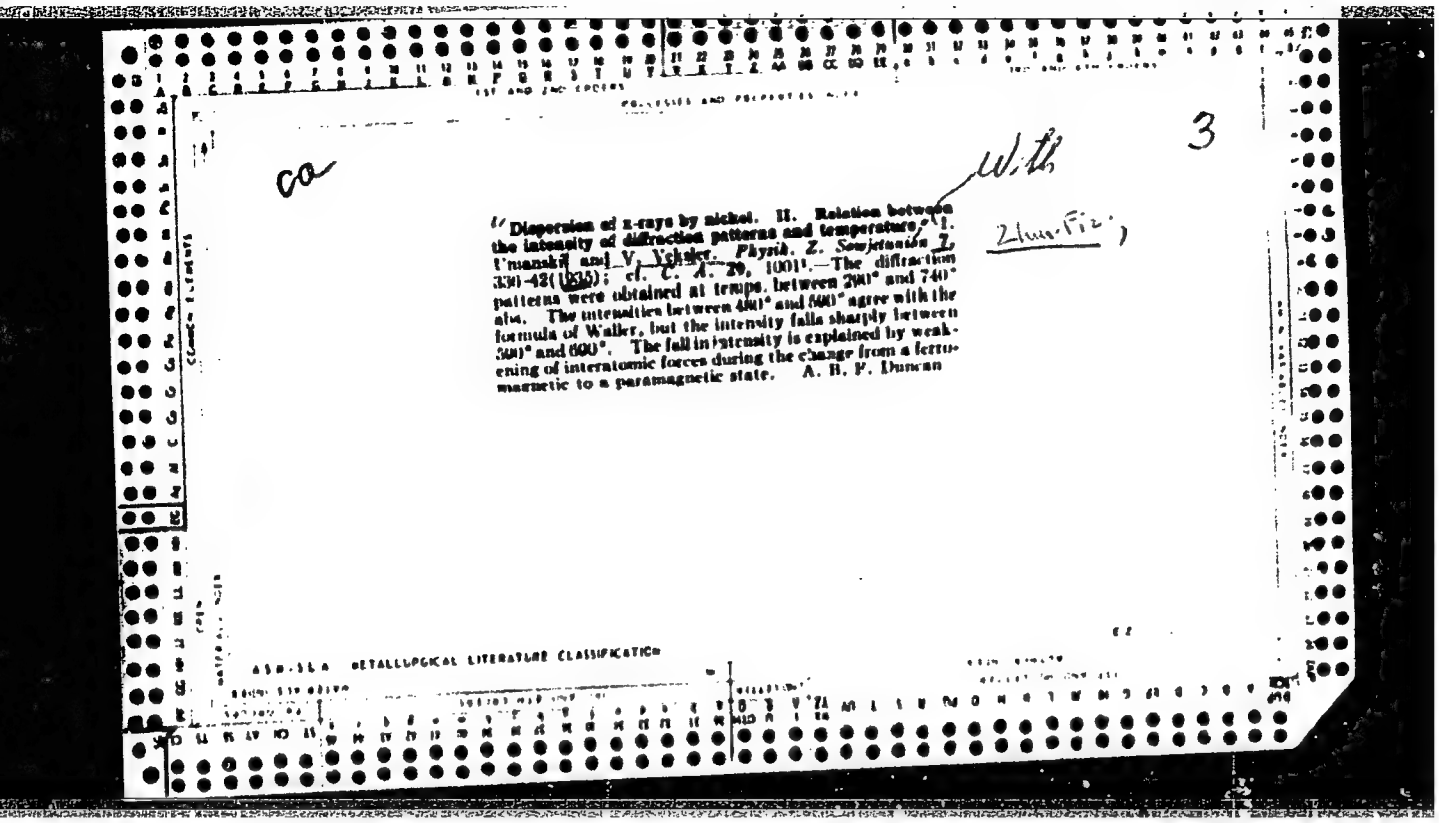
Dispersion of x-rays by nickel. I. The atomic-factor curve for nickel. I. Umanskiĭ and V. Vekshinskiĭ. *Physik. Z. Sowjetunion* 5, 208-07(1934).—A theoretical curve for $F(\sin\theta/\lambda)$ is constructed from a Fermi atom model and compared with one obtained experimentally by the authors. Intensities were obtained by a spectrograph with a Geiger-Müller counter. The slight divergence of the curves is discussed. A. B. F. Duncan



The principles of a new method for the measurement of the intensity of x-rays. V. [illegible] A. V. Bilenkin and M. P. Ivanov. *Exptl. Theoret. Phys. (U.S.S.R.)* 5, 405-5(1935).—A Geiger-Müller counter is modified by combination with a thyratron relay and used to measure the intensity of x rays at the rate of ten to a thousand quanta per second. Data are given on the time of discharge in the ordinary counter and in the modified system with the discharge chamber walls supplied by d. c.
J. H. Rathmann



"A linear proportional amplifier for weakly ionizing agents." V. Veksler and B. Isaev. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 3, 970-5(1933).—An app. for detg the intensity of x-rays and various phys. phenomena connected with small ionization effects at higher pressures is described.
F. H. Rathmann



co

3

"Dispersion of x-rays by nickel. II. Relation between the intensity of diffraction patterns and temperature." I. I'manskii and V. Vekshinskii. *Physik. Z. Sowjetunion* 7, 330-42 (1935); cf. *C. A.* 29, 1001¹.—The diffraction patterns were obtained at temps. between 20° and 740° abs. The intensities between 400° and 600° agree with the formula of Waller, but the intensity falls sharply between 500° and 600°. The fall in intensity is explained by weakening of interatomic forces during the change from a ferromagnetic to a paramagnetic state. A. B. F. Duncan

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

10

Measurement of Intensity of X-Ray Radiation by a Proportional Intensifier. V. Vekslrr and B. Isaiev (*Doklady Akademii Nauk S.S.S.R.*, 1936, 3, (8), 360-370 (in Russian); and *Compt. rend. Acad. Sci. U.R.S.S.*, 1936, 3, (8), 360-370 (in English)).—It is proposed to use a high pressure, non-independent discharge for measuring the intensity of X-rays. The apparatus, which consists of an aluminium cylinder filled with a mixture of krypton 85, and xenon 15%, at 600 mm. pressure, enables, owing to its high sensitivity, all measurements of ionization currents to be made with the usual mirror galvanometer of $2 \cdot 10^{-9}$ amp. sensitivity.—N. A.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

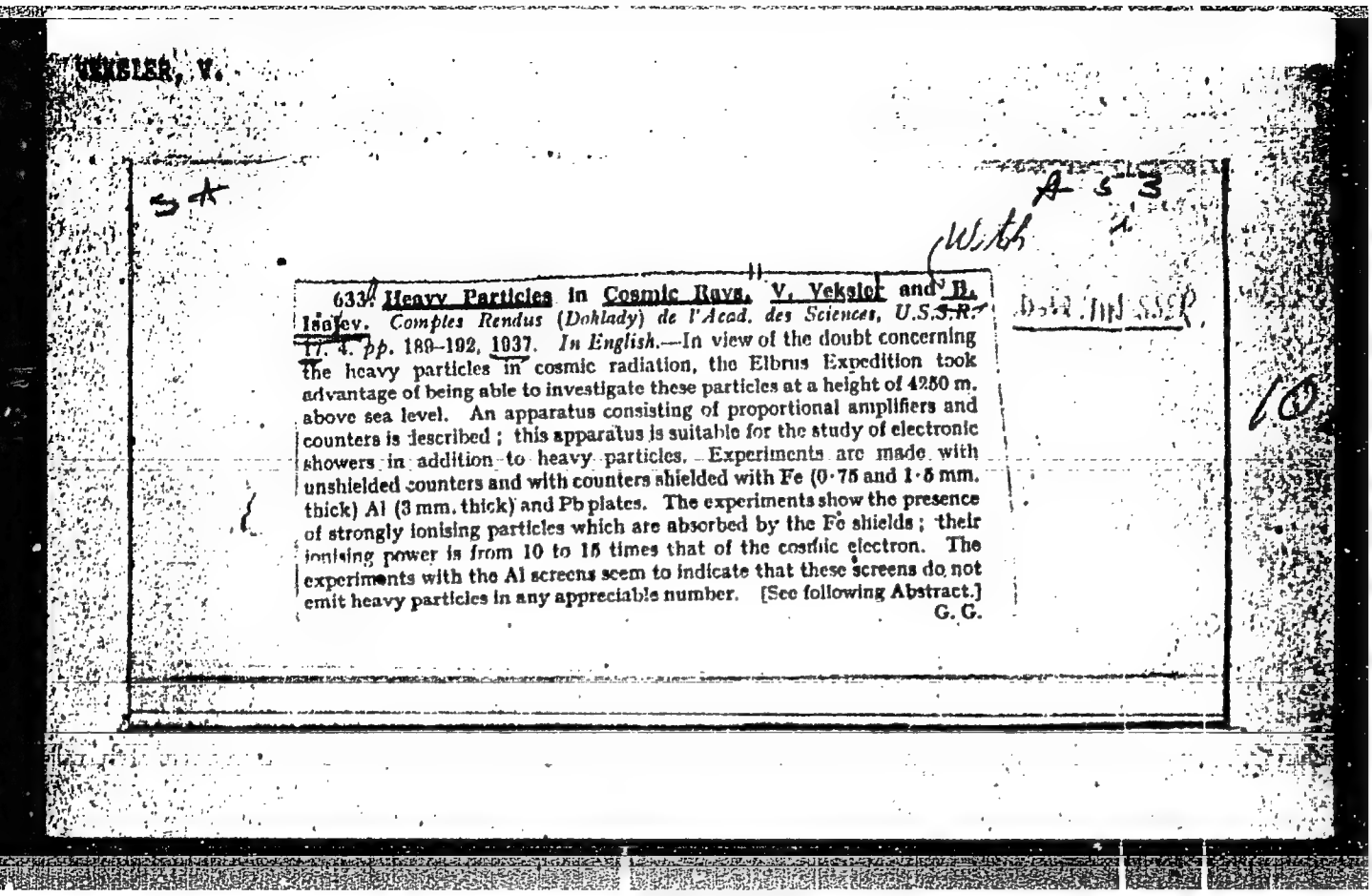
3C

"X-Ray defectoscope," V. [illegible], A. [illegible], B. Isaev, and V. [illegible] (Zavod. Lab., 1936, 5, 1106—1111).—Apparatus and methods are described. E. T.

With

KHRUSHCHEV, V.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



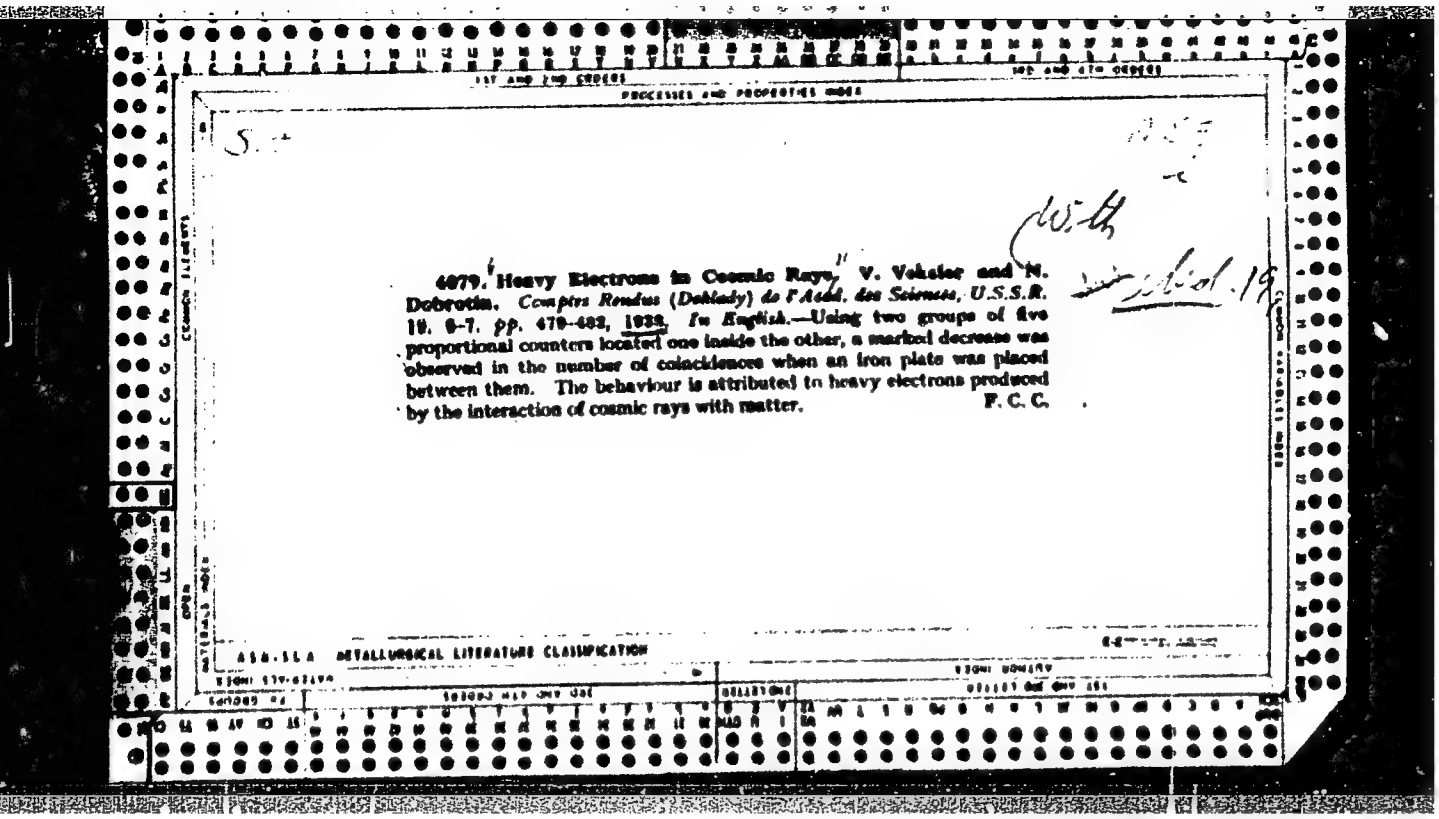
VEKSLER, V.

633. Heavy Particles in Cosmic Rays. V. Veksler and B. Isaiev. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 17. 4. pp. 189–192, 1937. *In English.*—In view of the doubt concerning the heavy particles in cosmic radiation, the Elbrus Expedition took advantage of being able to investigate these particles at a height of 4250 m. above sea level. An apparatus consisting of proportional amplifiers and counters is described; this apparatus is suitable for the study of electronic showers in addition to heavy particles. Experiments are made with unshielded counters and with counters shielded with Fe (0·75 and 1·5 mm. thick) Al (3 mm. thick) and Pb plates. The experiments show the presence of strongly ionising particles which are absorbed by the Fe shields; their ionising power is from 10 to 15 times that of the cosmic electron. The experiments with the Al screens seem to indicate that these screens do not emit heavy particles in any appreciable number. [See following Abstract.]
G. G.

VEKSLER, V.

.5A

634. "Cosmic-Ray Showers," V. Veksler and B. Isaev. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 17-4. *pp.* 193-194, 1937. *In English.*—The methods used to study heavy particles [see preceding Abstract] have been applied to showers. About half the coincidences obtained were due to particles penetrating a 3 mm. Pb plate and these were assumed to be due to showers. This assumption is supported by a study of the number of coincidences for different thicknesses of Pb screens—the so-called curve of Rossi. This curve so obtained is very different from similar curves obtained at sea-level in that its maximum is shifted to greater thicknesses of screening material. Apparently 3 to 4 electrons take part in the collisions. G. G.



4079. **Heavy Electrons in Cosmic Rays.** V. Veksler and N. Dobrotin. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 19. 6-7. pp. 479-482, 1938. *In English.*—Using two groups of five proportional counters located one inside the other, a marked decrease was observed in the number of coincidences when an iron plate was placed between them. The behaviour is attributed to heavy electrons produced by the interaction of cosmic rays with matter. F. C. C.

PROCESSES AND PROPERTIES INDEX

9-1

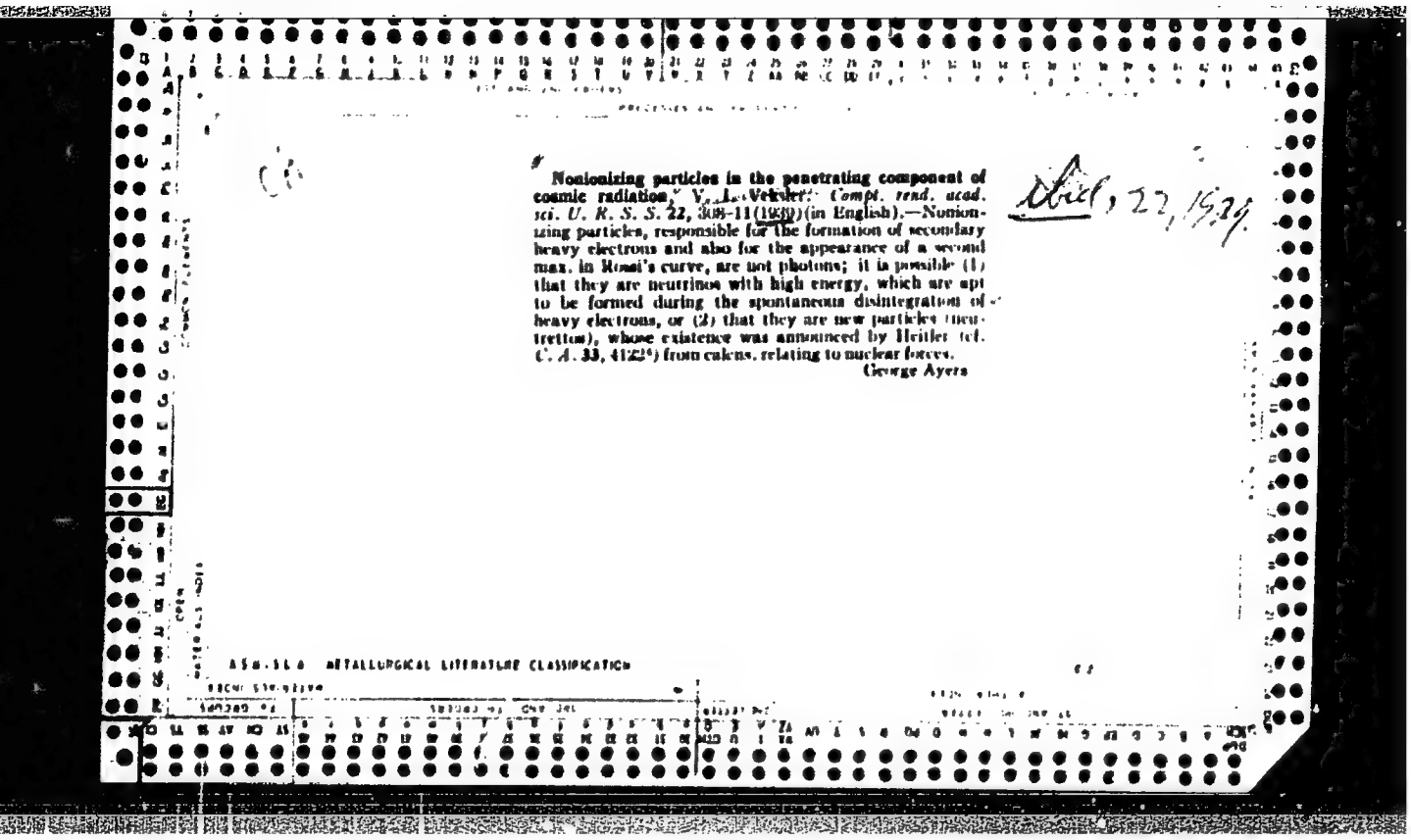
BC

ALEKSEYEVA, K.

REYIKOV, N.

"Heavy electrons in cosmic rays," V. VEKSLER, K. ALEKSEEVA, and N. REIKOV (Compt. rend. Acad. Sci. U.R.S.S., 1938, 21, 122—125).—Experiments with heavy electrons in cosmic rays were carried out with proportional counters. To determine the dependence of the no. of heavy electrons on altitude measurements were made at 3000, 4200, and 5300 m. above sea-level. This dependence on altitude coincides with that of the hard component of cosmic rays. The appearance of strongly ionising particles is not connected with the formation of showers. Heavy electrons are in equilibrium with the penetrating component of cosmic rays. The origin of heavy electrons is discussed. The hypothesis is advanced that they are formed by penetrating particles with the help of an intermediate non-ionising radiation. A. J. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

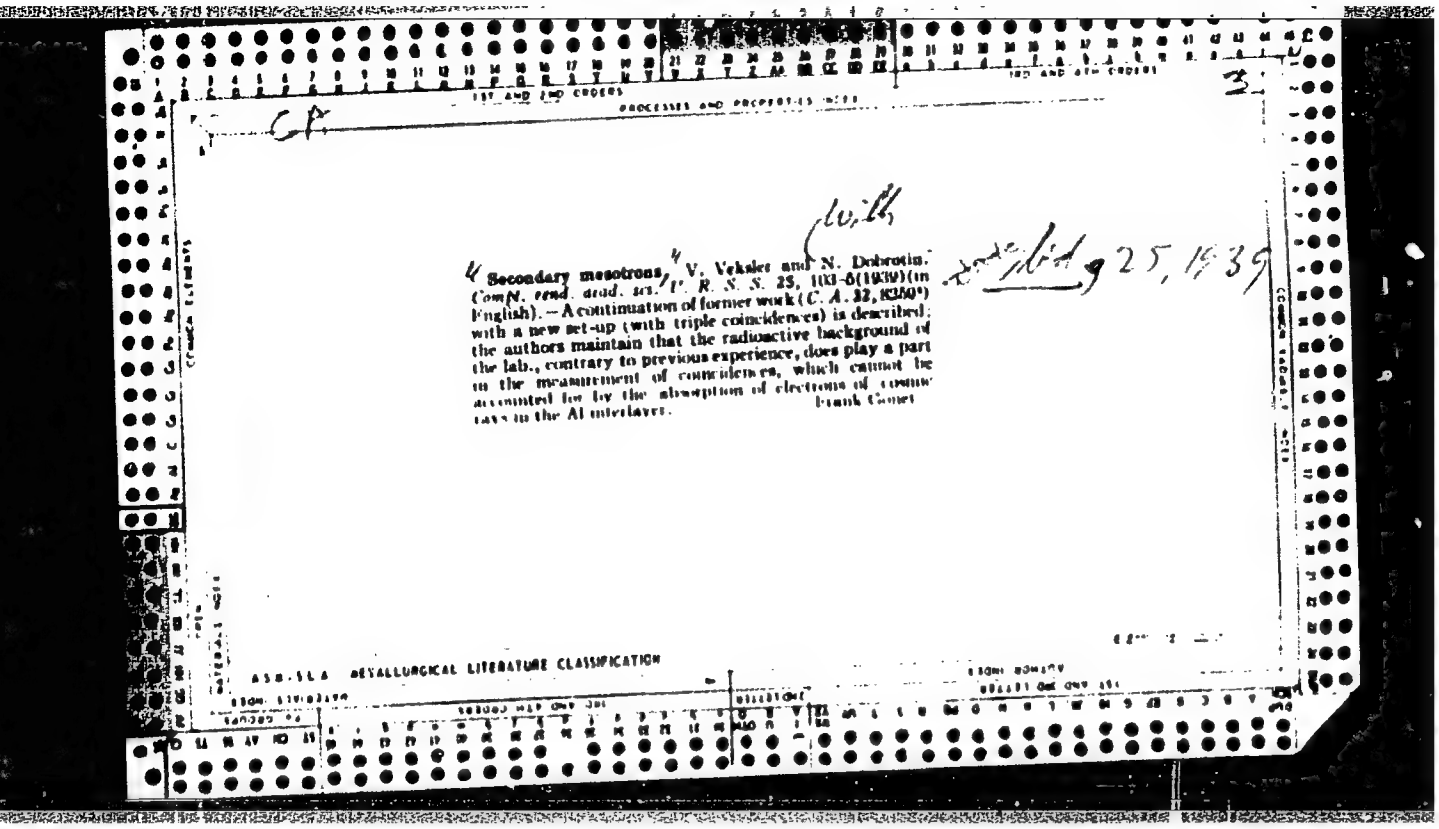


Nonionizing particles in the penetrating component of cosmic radiation. V. L. Veksler. *Compt. rend. acad. sci. U. R. S. S.* **22**, 308–11 (1939) (in English).—Nonionizing particles, responsible for the formation of secondary heavy electrons and also for the appearance of a second max. in Rossi's curve, are not photons; it is possible (1) that they are neutrinos with high energy, which are apt to be formed during the spontaneous disintegration of heavy electrons, or (2) that they are new particles (neutretto), whose existence was announced by Heitler (cf. *C. A.* **33**, 4123[9]) from calcns. relating to nuclear forces.

George Ayers

Oct 22, 1939

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



4 **Secondary mesotrons.** V. Veksler and N. Dobrotin. (*Compt. rend. acad. sci. U. R. S. S.* 25, 1103-6(1939)(in English).—A continuation of former work (*C. A.* 32, 8250⁹) with a new set-up (with triple coincidences) is described; the authors maintain that the radioactive background of the lab., contrary to previous experience, does play a part in the measurement of coincidences, which cannot be accounted for by the absorption of electrons of cosmic rays in the Al interlayers. Frank Comet

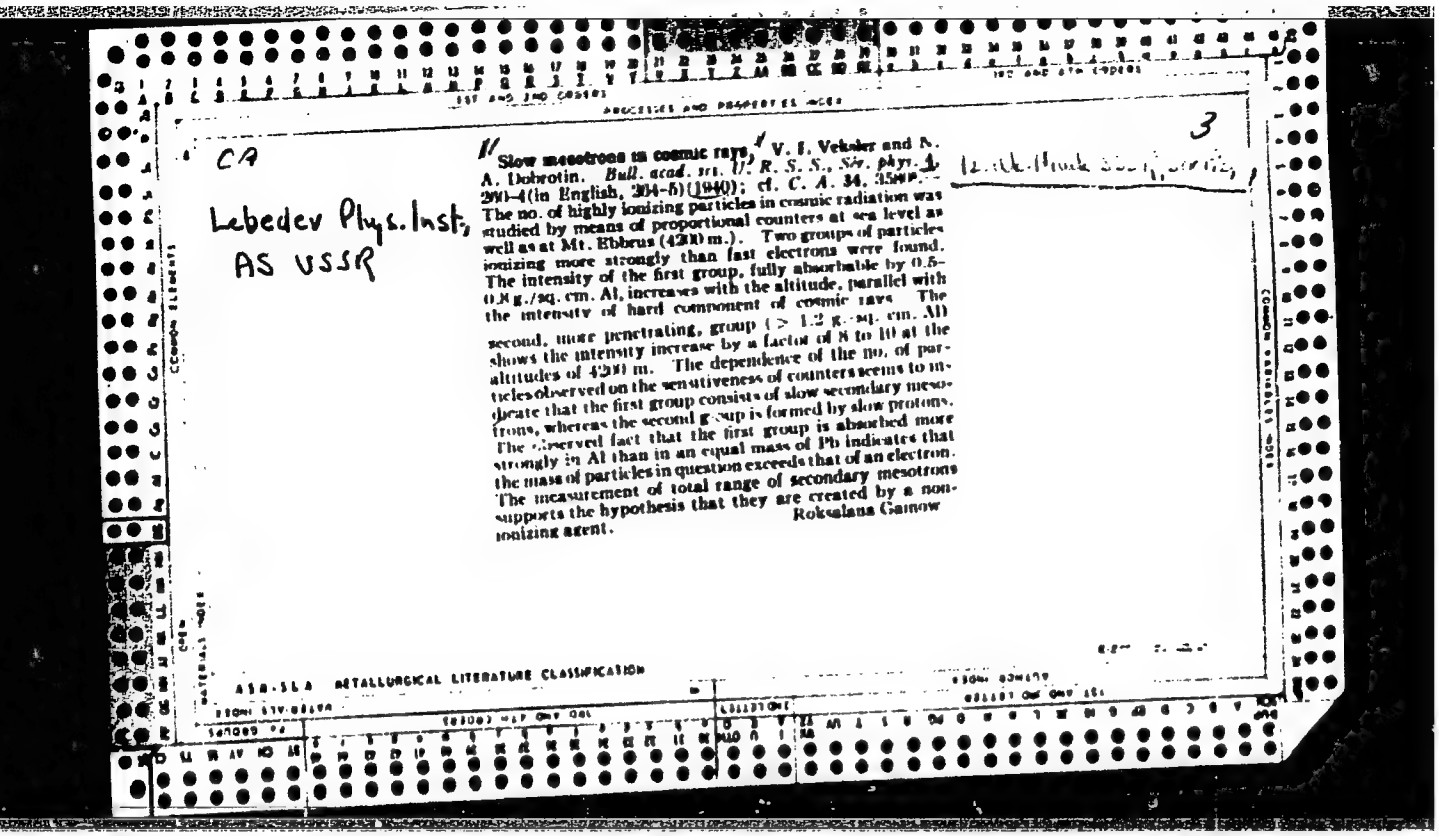
VEKSLER, Vladimir Iosifovich, L. Groshev and N. Dobrotin

"Experimental Methods in Nuclear Physics," Moscow-Leningrad, 1940

Bol'shaya Sovetskaya Entsiklopedia, Vol. VII, 2nd ed., Moscow, 1949

VEKSLER, V.

Experimental methods in nuclear physics Moskva, Akad. nauk SSSR, 1940. 339p.
Nauchno-populiarnaia seriia
At head of title: Akademiia nauk SSSR.V. Veksler, L. Groshev, N. Dobrotin.



CA

Lebedev Phys. Inst, AS USSR

3

Slow mesotrons in cosmic rays. V. I. Veksler and N. A. Dobrotin. *Bull. acad. sci. U. R. S. S., Sér. phys.* 3, 209–14 (in English, 204–8) (1940); cf. *C. A.* 34, 3549⁹. The no. of highly ionizing particles in cosmic radiation was studied by means of proportional counters at sea level as well as at Mt. Elbrus (4200 m.). Two groups of particles ionizing more strongly than fast electrons were found. The intensity of the first group, fully absorbable by 0.5–0.8 g./sq. cm. Al, increases with the altitude, parallel with the intensity of hard component of cosmic rays. The second, more penetrating, group (> 1.2 g./sq. cm. Al) shows the intensity increase by a factor of 8 to 10 at the altitudes of 4200 m. The dependence of the no. of particles observed on the sensitiveness of counters seems to indicate that the first group consists of slow secondary mesotrons, whereas the second group is formed by slow protons. The observed fact that the first group is absorbed more strongly in Al than in an equal mass of Pb indicates that the mass of particles in question exceeds that of an electron. The measurement of total range of secondary mesotrons supports the hypothesis that they are created by a non-ionizing agent.

Roksalana Gainow

A58-SLA METALLURGICAL LITERATURE CLASSIFICATION

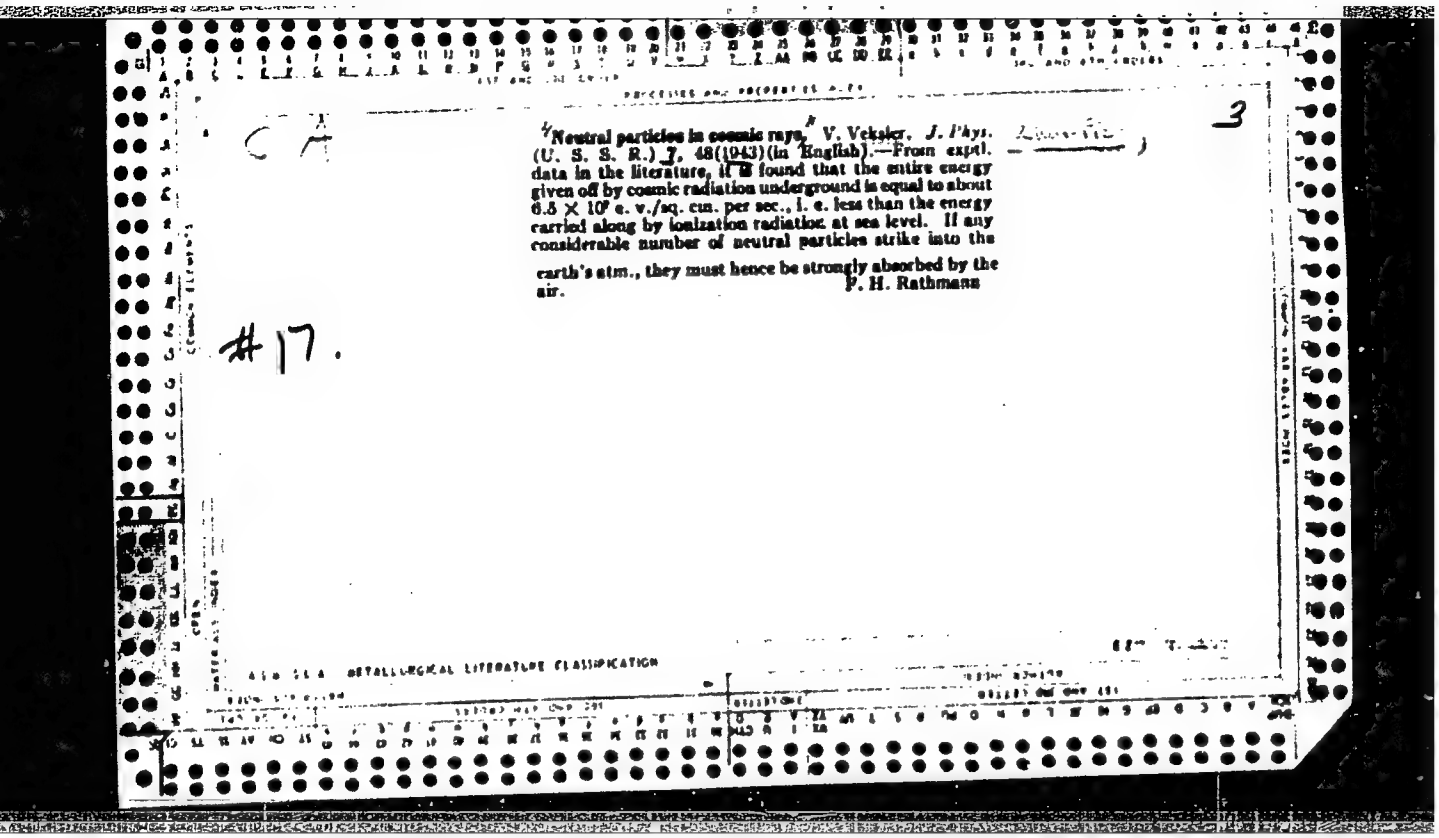
CA

Lebedev Phys. Inst., AS, USSR.

3

Secondary mesotrons. V. I. Veksler and N. A. Dobrotin. *Compt. rend. acad. sci. U. R. S. S.* 29, 303-2(1940) (in English); cf. *C. A.* 34, 3580. —A combination of Geiger counters, proportional counters and adsorbing layers is used to study the adsorption of secondary slow mesotrons. The expts. are carried out at an altitude of 4200 m. above sea level. The data indicate that the ranges of the secondary mesotrons are small and that their kinetic energy is only a fraction of their total energy. R. A. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



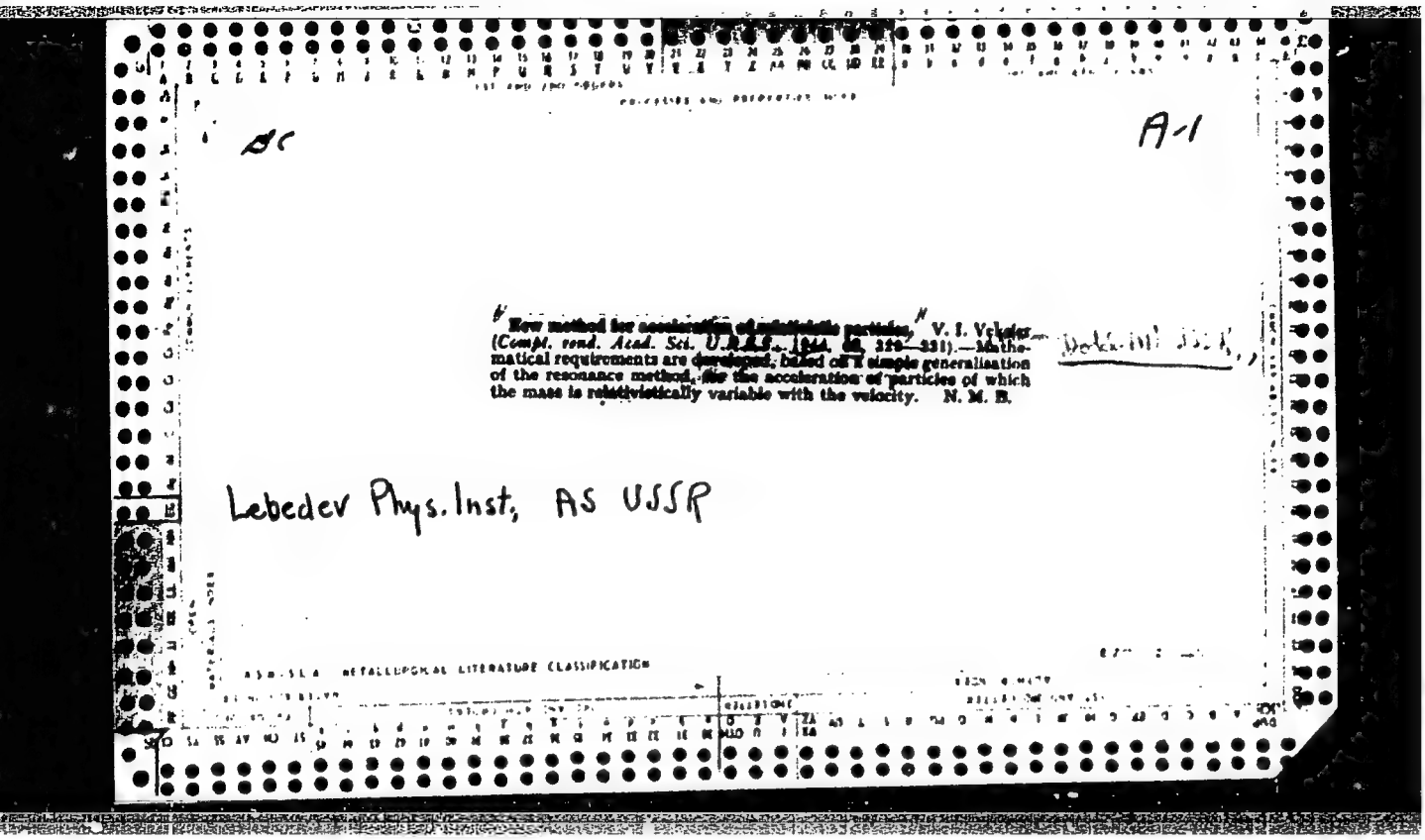
C A

3

#17.

Neutral particles in cosmic rays. V. Veksler. *J. Phys.* (U. S. S. R.) 7, 48(1943)(in English).—From expt. data in the literature, it is found that the entire energy given off by cosmic radiation underground is equal to about 6.5×10^5 e. v./sq. cm. per sec., i. e. less than the energy carried along by ionization radiation at sea level. If any considerable number of neutral particles strike into the earth's atm., they must hence be strongly absorbed by the air.

P. H. Rathmann



Ac

A-1

"New method for acceleration of relativistic particles." V. I. Veksler. (*Compt. rend. Acad. Sci. U.R.S.S.*, [1944], 43, 329—331).—Mathematical requirements are developed, based on a simple generalisation of the resonance method, for the acceleration of particles of which the mass is relativistically variable with the velocity. N. M. B.

Lebedev Phys. Inst, AS USSR

A.S.T.I.A. METALLURGICAL LITERATURE CLASSIFICATION

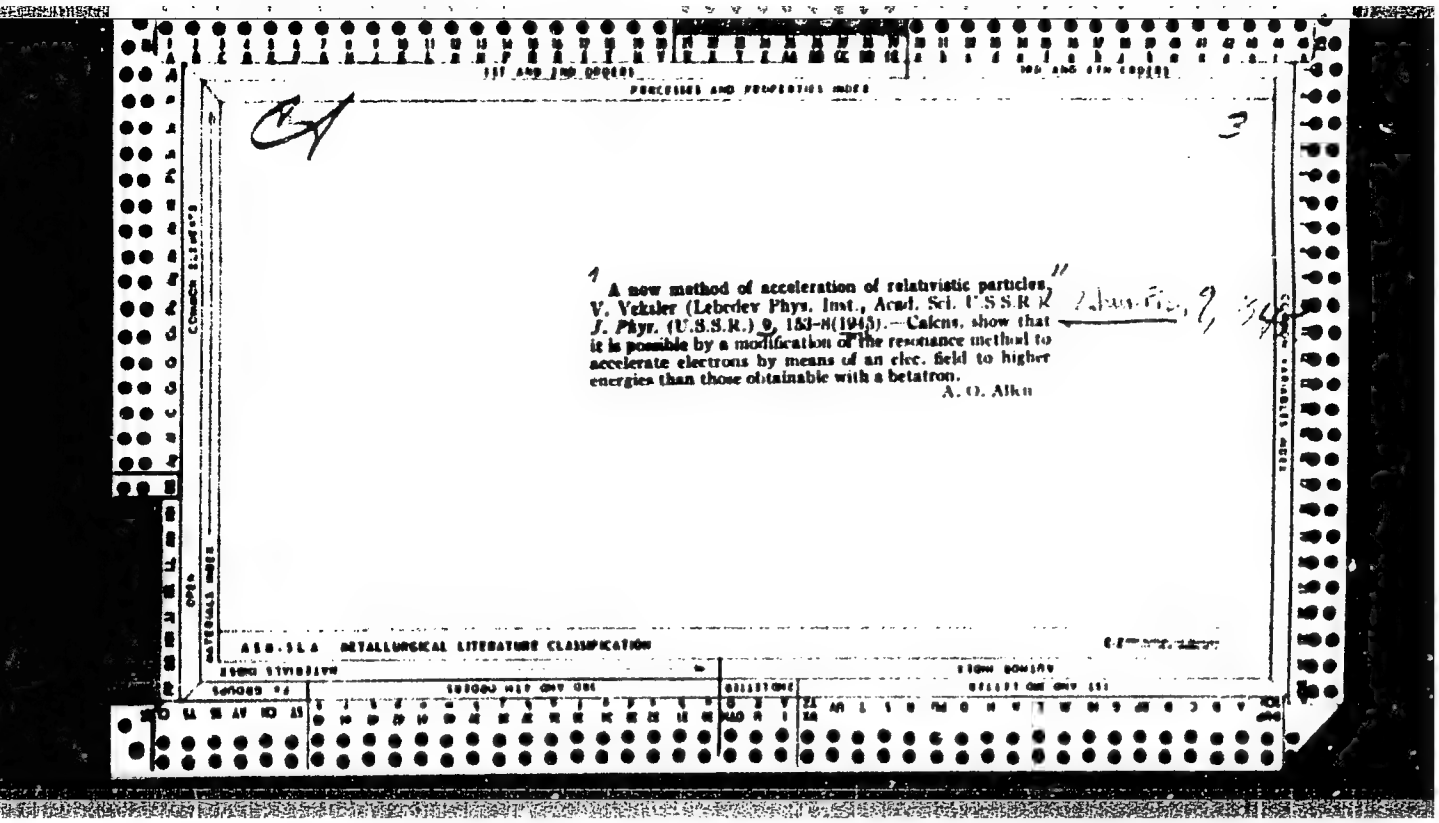
METALLURGICAL LITERATURE CLASSIFICATION

CA

3

A new method of acceleration of relativistic particles, V. I. Veksler. *Compt. rend. acad. sci. U.R.S.S.* 44, 365-8; *Doklady Akad. Nauk S.S.S.R.* 44, 393-6(1944); cf. *C.A.* 40, 1085[9], 3990[4].—Because of automatic phasing, resonance acceleration is possible when the magnetic field intensity increases with time. The resonance accelerator has an advantage over the solenoidal accelerator in that the magnet can be constructed in the form of a thin ring. Synchronism can be achieved if variations of the magnetic field along the radius are comparatively small and if the potential difference which is communicated to the particle during each revolution is less than the amplitude of the elec. field. Jacquelyn Findlay

ibid., 4, 1944.



A new method of acceleration of relativistic particles. V. Veksler (Lebedev Phys. Inst., Acad. Sci. U.S.S.R.) *J. Phys.* (U.S.S.R.) 9, 153–8(1945).—Calcns. show that it is possible by a modification of the resonance method to accelerate electrons by means of an elec. field to higher energies than those obtainable with a betatron.

A. O. Allen

With

Highly ionizing particles in cosmic radiation. V. Veksler, N. Dobrotin, and V. Khvoles. *J. Phys. (U.S.S.R.)* 9, 2? 9 1945). The authors have improved upon their former method of measuring coincidences with two trays of proportional counters (cf. C.A. 32, ?220) by inserting an oscillograph into the circuit and recording the magnitude of the pulses on a moving film. The results, at an altitude of 3000 m. above sea level, show that the no. of particles with a specific ionization 3 to 4 times greater than fast mesons amounts to less than 0.5% of the no. of particles of the penetrating component of cosmic rays. An analysis of the oscillograms shows that the triple-coincidence curve decreases more rapidly with the pulse size than the anticoincidence curve. For triple coincidences, only 4% of the pulses in the lower tray have magnitudes exceeding 3.6 × 10⁴ ion pairs; while for anticoincidences these pulses comprise 21%. Of the data analyzed to date, half of all the recorded highly ionizing particles are slow mesons identical with those observed in previous investigations (cf. C.A. 35, 3062). The remaining particles are protons or, possibly, α-particles. Frank Gonet

ibid., 9, 445

Lebedev Phys. Inst., AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VEKSLER, V., GROSHEV, L. V., and LAZAREVA, L.,

"Penetrating (Atmospheric) Showers in Cosmic Rays," The Physical Review, 1946, Vol. 70, Nos. 5-6, pp 440-441. (In English available at Battelle Memorial Institute).

The number of coincidences between counter trays arranged horizontally was compared with that when they were arranged one above the other, and was found to be only about 1/5. The difference, however, could not be ascribed entirely to heavily ionizing particles, as a substantial proportion of the vertical coincidences remained when twelve cm, of Pb is interposed, indicating penetrating (probably meson)showers. These showers were produced in the atmosphere, as the apparatus was effectively in the open air, and were about twice as frequent as Auger showers producing 710 particles on each 700 cm^2 tray, cm. apart. The mechanism of production of these showers is discussed.

VEKSLER, V.

Jul/Aug 46

USSR/Nuclear Physcis - Counters, Electronic
Nuclear Physics - Cosmic Radiation

"A Flat Proportional Counter," L. Bell, V. Veksler, Lebedev Phys Inst, Acad Sci USSR, 2 pp

"Journal of Physics USSR" Vol X, No 4 ibid, 10, Aug-Dec 1946

Description and investigation of characteristics of a flat proportional counter. Result indicates that it possesses all properties usually required of proportional counters and, in addition, certain advantages resulting from special geometry. Received 2 Jun 1946.

PA 54T71

PROCESSES AND PROPERTIES INDEX

B6

With [illegible], 10, 1946. Lebedev Phys. Inst. AS USSR

and No6,

Penetrating cosmic-ray showers at 3860 m. above sea-level. N. Birger, and V. Veksler (J. Physics U.S.S.R., 1946, 10, 195—199).—Proportional counters, employing triple coincidences, were used to investigate penetrating cosmic-ray showers on the Pamir plateau, 3860 m. above sea level. The showers penetrated 12 cm. of Pb, and a shower consisting of at least 34 particles, equiv. to a particle density of 600 per sq. m., was observed. The frequency of these showers is ~0·05% of that of the hard component, whilst the frequency of penetrating showers with a particle density < 34 per sq. m. is 0·3% of the frequency of the particles of the hard component. It is, however, possible that the large ionisation found may be caused by nuclear explosions or separate highly ionising particles produced in the counter walls or in the Pb by some penetrating radiation.

A. J. M.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

VEKSLER, V.

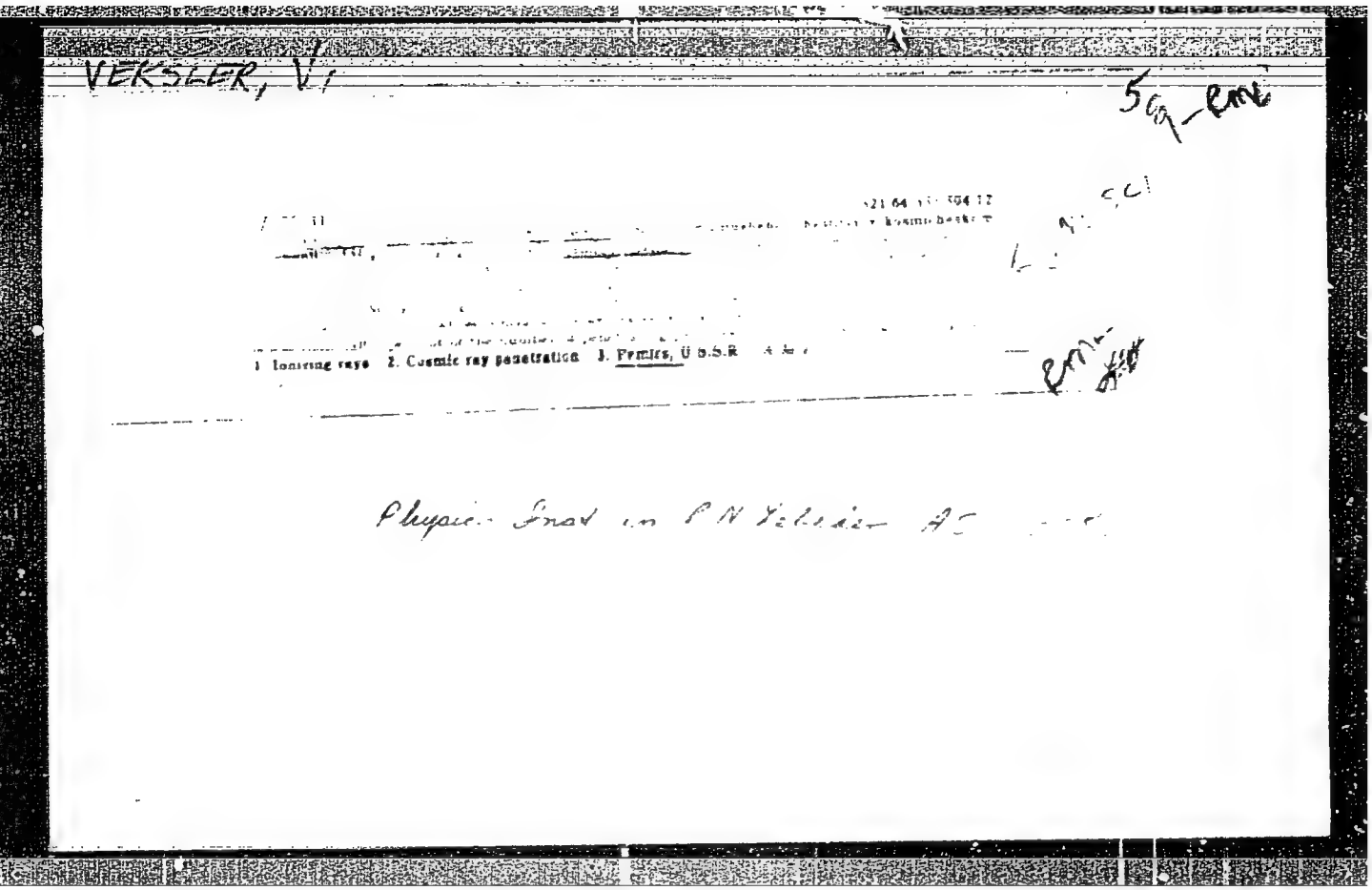
USSR/Nulcear Physics - Cosmic Radiation Nov/Dec 46
Nuclear Physics - Equipment

"The Measurements of the Intensity of the Cosmic Radiation by the Telescope Method," S. Azimov, V. Veksler, N. Dobrotin, G. Zhdanov, A. Lubimov, Lebedev Phys Inst, Acad Sci USSR, 7 pp

"Journal of Physics USSR" Vol X, No 6 Abd., 10, Dec 1946.

Demonstrates two factors, scattering in counter walls and side showers, which influence measurements of soft components; in hard and soft components intensity measurements by different "telescopes." Formulates requirements for correct measurements in use of telescope method. Received 26 Apr 1946.

PA 54T74



VERSLER, V.I.

1. Ionizing rays 2. Cosmic ray penetration 3. Fermiy, U.S.S.R.

Physics Inst. im. P.N. Lebedev AS

VEKSLER, V. I.

"Penetrating Cosmic Ray Showers at 3860m Above Sea Level," L.N.Bell, N.S. Birger, and V.I.Veksler. C.R.Acad. Sci.URSS, 52, No. 2, pp 113-16, 1946. Phys.Inst.USSR.

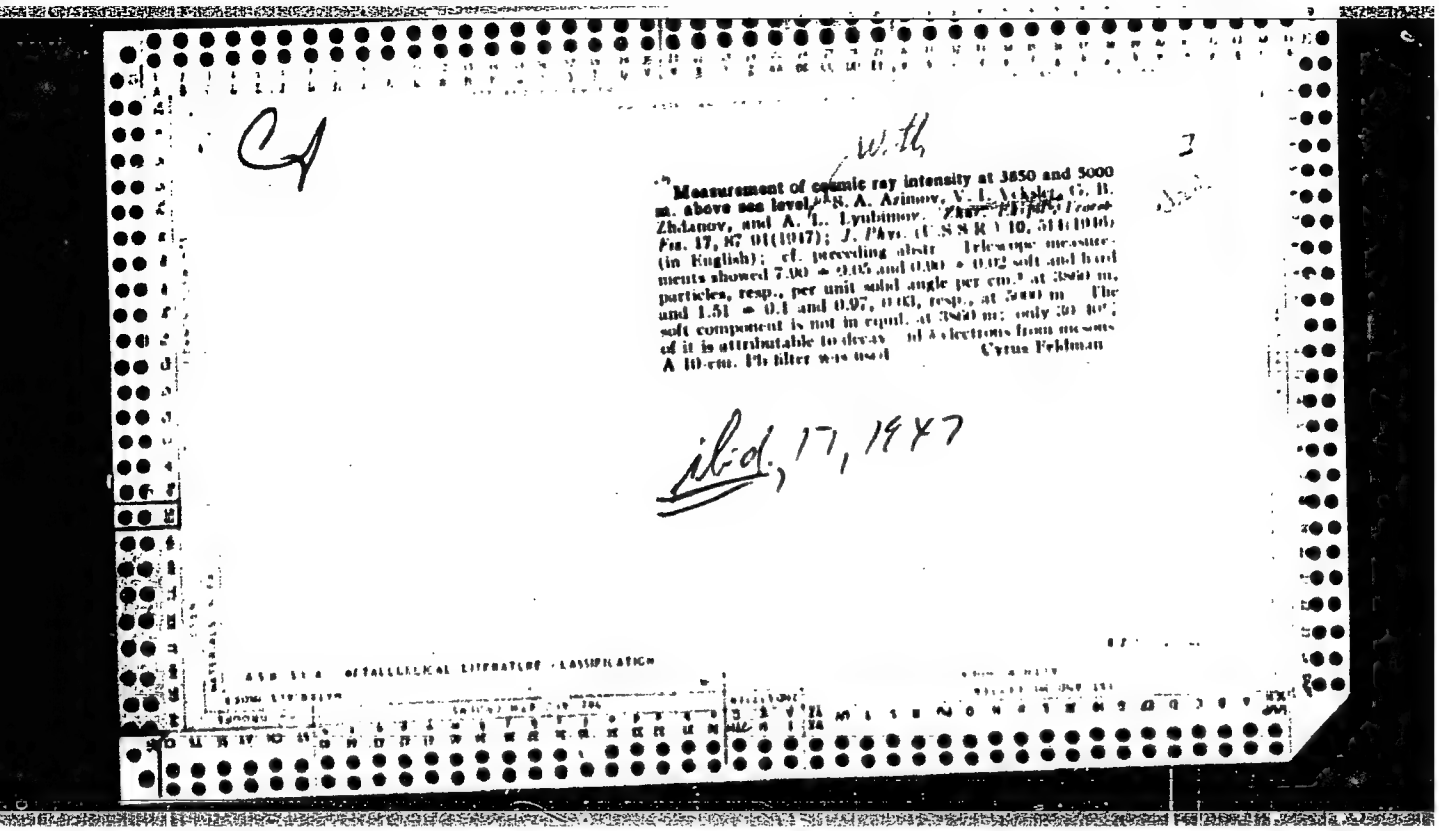
The showers were investigated by means of special proportional counters, triple coincidences being recorded. The apparatur consisted of an amplifier of triple coincidence and 3 sets of flat proportional counters. The experiments show that at 3860m there exist considerably denser penetrating showers than those previously recorded, and the frequency of these showers is about 0.05% that of the hard component.

L.S.G.

VEKSLER, V. I.

"Measurements of cosmic-ray intensities by the telescope method," S. A. Azimov, V. I. Veksler, N. A. Dobrotin, G. B. Zhdanov, and S. I. Lyubimov, *Zhur. Eksptl. i Teoret. Fiz.* 17, 69-86(1947); *J. Phys.* (U.S.S.R.) 10, 507(1946)(in English).—Various authors have obtained widely different results for cosmic-ray intensities because of failure to correct adequately for scattering in the walls of the counter, and for showers from the same source. Walls of counters used in telescopes should be thin (say 0.27 g./cm.^{2}), and made of a material of low Z. Telescopes should occupy a large solid angle. Any filters should be placed above the lowest counter, and should not exceed the counter's solid angle. Corrections for side-wall showers should be made for both hard and soft components.

Cyrus Feldman



C4

with

3

Measurement of cosmic ray intensity at 3850 and 5000 m. above sea level. S. A. Azimov, V. I. Veksler, G. B. Zhdanov, and A. L. Lyubimov. Zhur. Fiz. Eksper. Teor. Fiz. 17, 87-91(1947); J. Phys. (U.S.S.R.) 10, 311(1946) (in English); cf. preceding abstr. Telescope measurements showed 7.00 ± 0.05 and 0.30 ± 0.02 soft and hard particles, resp., per unit solid angle per cm.² at 3850 m. and 1.51 ± 0.1 and 0.97 ± 0.03, resp., at 5000 m. The soft component is not in equil. at 3850 m; only 30-40% of it is attributable to decay of π-electrons from mesons. A 10-cm. Pb filter was used. Cyrus Feldman

ibid., 17, 1947

VEKSLER, V.

USSR/Nuclear Phys - Counters, Proportional
Nuclear Phys - Equipment

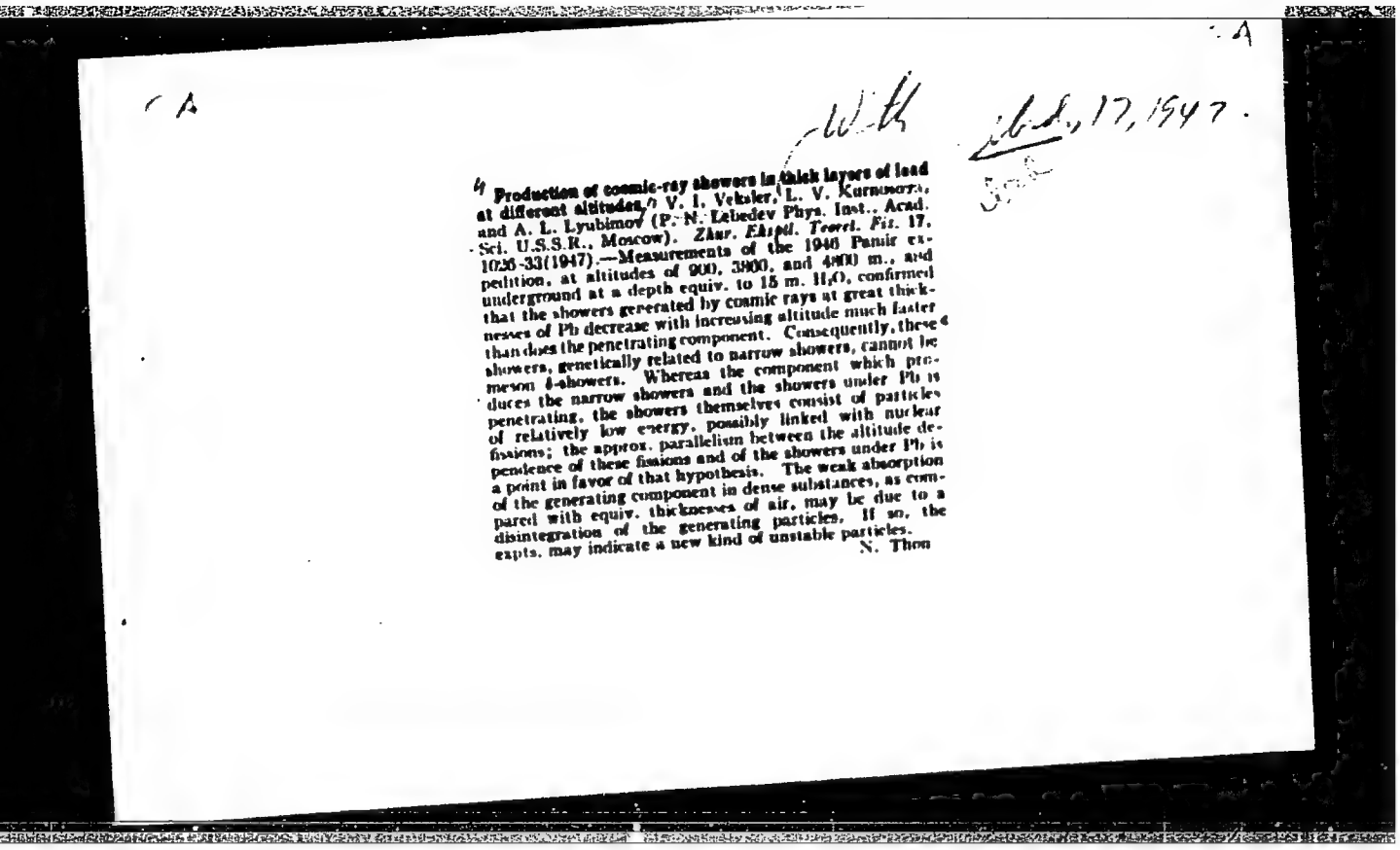
Feb 1947

"Flat Proportional Counter," L. Bell, V.Veksler, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 5½ pp

"Zhur Eksper i Teoret Fiz", Vol XVII, No 2

Describes flat proportional counter. Makes study of its properties and shows that it fulfills all requirements usually demanded. Shows that special attention must be paid to elimination of formation of negative ions in the working gas. Article was also published in English in "Journal of Physics" VOL X, p 386, 1946.

PA 57T68



CA

CA

With Oct. 17, 1947.

4 **Production of cosmic-ray showers in thick layers of lead at different altitudes.** V. I. Veksler, L. V. Kurnosova, and A. L. Lyubimov (P. N. Lebedev Phys. Inst., Acad. Sci. U.S.S.R., Moscow). *Zhur. Eksptl. Teoret. Fiz.* 17, 1026-33(1947).—Measurements of the 1946 Pamir expedition, at altitudes of 900, 3900, and 4900 m., and underground at a depth equiv. to 15 m. H_2O, confirmed that the showers generated by cosmic rays at great thicknesses of Pb decrease with increasing altitude much faster than does the penetrating component. Consequently, these showers, genetically related to narrow showers, cannot be meson δ-showers. Whereas the component which produces the narrow showers and the showers under Pb is penetrating, the showers themselves consist of particles of relatively low energy, possibly linked with nuclear fissions; the approx. parallelism between the altitude dependence of these fissions and of the showers under Pb is a point in favor of that hypothesis. The weak absorption of the generating component in dense substances, as compared with equiv. thicknesses of air, may be due to a disintegration of the generating particles. If so, the expts. may indicate a new kind of unstable particles.
N. Thon

VEKSLER, V. I.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 679 - I

BOOK Call No.: QC787.I6V4

Authors: VEKSLER, V. I., GROSHEV, L. V., and ISAYEV, B. M.

Full Title: IONIZATION METHODS OF RADIATION ANALYSIS

Transliterated Title: Ionizatsionnyye metody issledovaniya izlucheniy

PUBLISHING DATA

Originating Agency: None

Publishing House: State Publishing House of Technical and Theoretical Literature ("Gostekhizdat")

Date: 1949 No. pp.: 424 No. of copies: 5,000

Editorial Staff: None

PURPOSE: The book is intended for a wide range of scientific workers in various fields and for graduate students and teachers.

TEXT DATA

Coverage: Part I of this work (p. 9-162) discusses ionization chambers for alpha, beta, gamma radiation, for cosmic rays and fast neutrons, as well as impulse chambers. In part II (p. 163-423) counters for charged particles are examined and the theories of their operation and of corrections for individual counters are given. Proportional-counters, including those for fast particles and neutrons, and self-extinguishing and non self-extinguishing counters are examined in detail. New types of counters and different modes of operation

worked out by Soviet physicists are described. According to the authors, this is the first extensive monograph on the subject in the USSR. A new edition of this work was published in 1951 but is not in the Library of Congress. The book is based on material which appeared during the decade before its publication. It contains many illustrations, tables, diagrams and equations.

No. of References: Part I, 101 refs.; Part II, 132 refs. With few exceptions, non-Russian.

Facilities: None

VEKSLER, V. I.

26930. BIRGER, N. G., VEKSLER, B. I., DOBROTIN, N. A.- Elektoronno-ya ernyye livni kosmicheskikh luchey I yaderno-kaskadnyy protsess.- Avt: N. G. BIRGER, B. I. VEKSLER, N. A. DOBROTIN (1 dr.) Shurnal eksperim. i teoret. Fiziki, 1949, Vyp. 9. c. 826-50---Bibliogr: s. 850

SO: Letopis' Zhurnal'nykh Statey, Vol. 36, 1949.

VEKSLER, V. I.

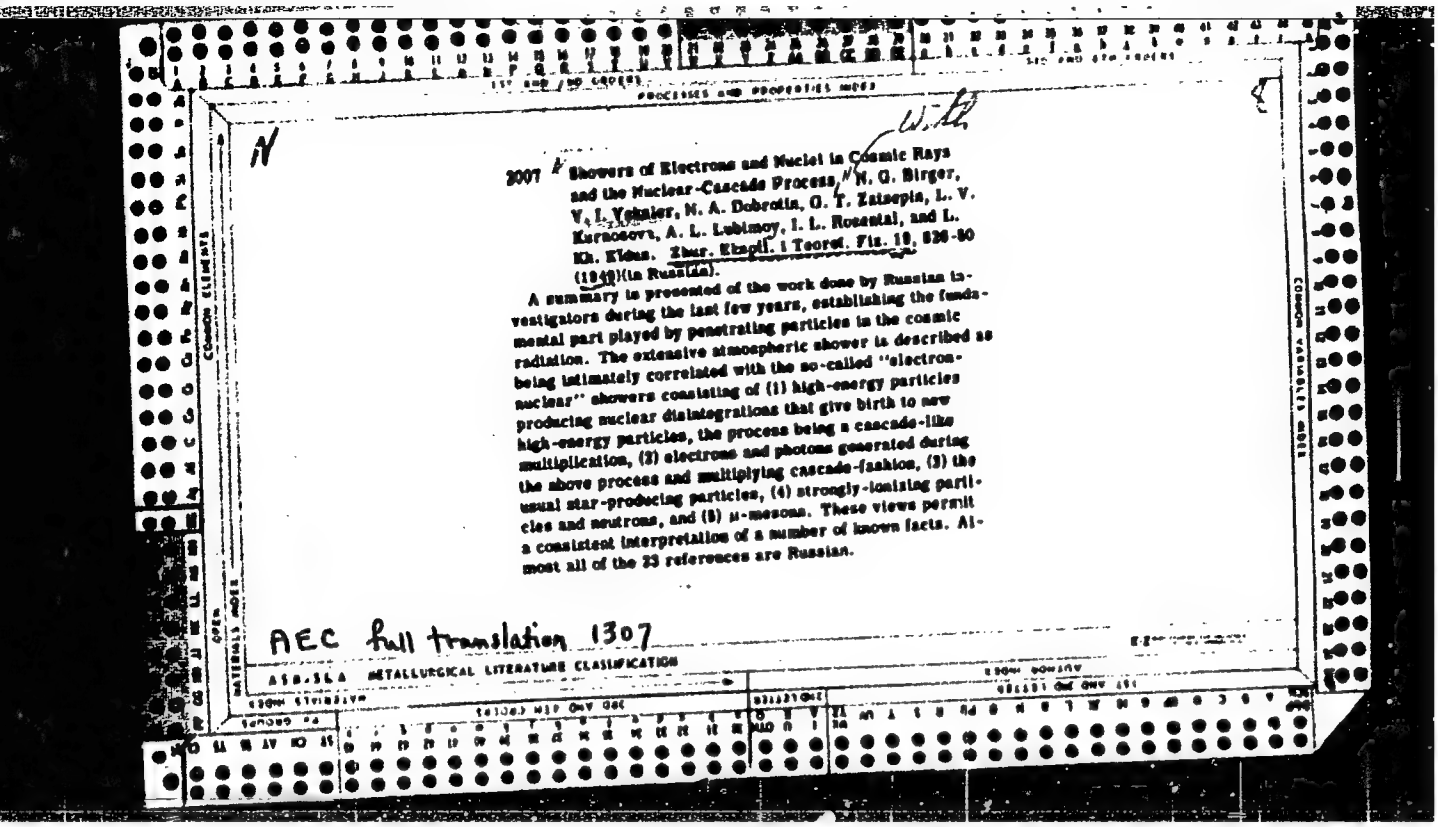
Physics

Chem Abs V48
1-25-54
Electronic Phenomena

Physico-Tech. Inst., AS Uzbek SSR
~~Physics Inst~~ (Veksler)

Secondary emission of nickel and graphite surfaces under bombardment by mercury ions, V. Ia. Veksler and G. A. Kikin (Phys.-Tech. Inst., Acad. Sci. Uzbek S.S.R.). *Doklady Akad. Nauk Uzbek. S.S.R.* 1949, No. 12, 15–18.—The ions were produced in a low-voltage discharge in Hg vapor and projected by 2 electrostatic lenses in a beam 2 mm. in diam. with a c.d. of 10^{-7} amp. on a heated spherical target surrounded by a spherical collector. A differential vacuum between the gaseous and high-vacuum parts was established by means of pumps and traps. The coeffs. of electron emission γ and ionic emission K of Ni and graphite under bombardment by 200–1200-e.v. ions have been measured. γ in Ni depends on 2 processes, one strongly dependent on the kinetic energy and the other on the potential energy of the ion; for graphite only the first process takes place. The change of γ upon degassing of the Ni and graphite targets by heating of a clean target after exposure to air for 1 min. at room temp. has been investigated. The γ of a degassed Ni target after exposure to air for 1 min. at a target temp. of 900–1000° has also been measured. The γ of a target with adsorbed gas is 10. Measurements were made with retarding potentials on the collector, and the energy distribution of secondary ions and electrons from Ni and graphite has been plotted to within 5%. Most electrons from Ni do not exceed 5 e.v., most ions 10 e.v., most electrons from graphite 15 e.v., ions 20 e.v. S. Paksver

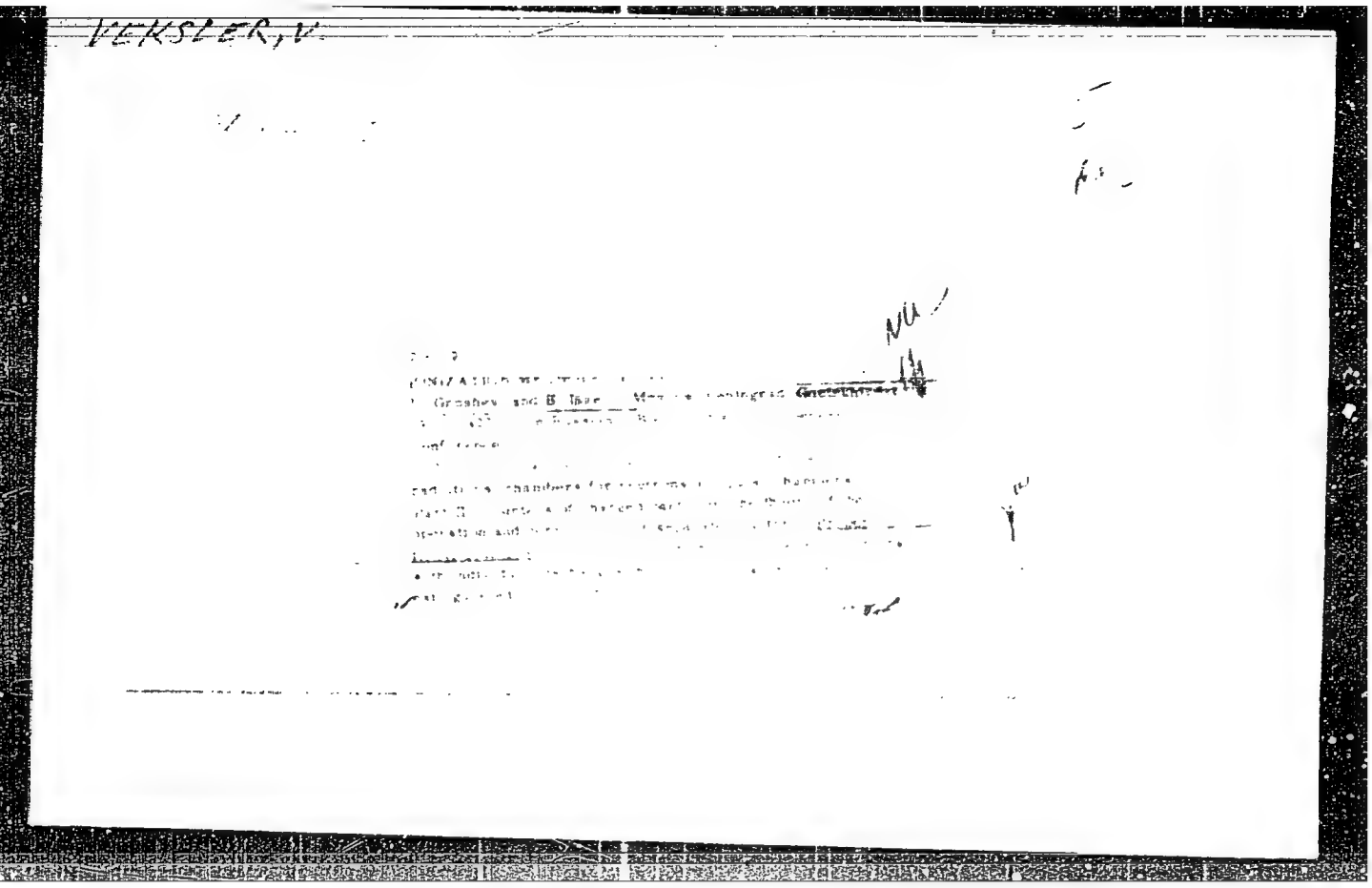
6/2754



2007 Showers of Electrons and Nuclei in Cosmic Rays and the Nuclear-Cascade Process, N. G. Birger, V. I. Yakaier, N. A. Dobrotin, G. T. Zatsepin, L. V. Kurnosova, A. L. Lubimov, I. L. Rosental, and L. Kh. Eidus. Zhur. Eksptl. i Teoret. Fiz. 19, 830-80 (1949)(in Russian).

A summary is presented of the work done by Russian investigators during the last few years, establishing the fundamental part played by penetrating particles in the cosmic radiation. The extensive atmospheric shower is described as being intimately correlated with the so-called "electron-nuclear" showers consisting of (1) high-energy particles producing nuclear disintegrations that give birth to new high-energy particles, the process being a cascade-like multiplication, (2) electrons and photons generated during the above process and multiplying cascade-fashion, (3) the usual star-producing particles, (4) strongly-ionizing particles and neutrons, and (5) μ-mesons. These views permit a consistent interpretation of a number of known facts. Almost all of the 25 references are Russian.

AEC full translation 1307



VEKSLER, V., GROSHEV, L. and ISAYEV, B.

"Ionizational Methods for Investigations of Radiations.", Glavpoligrafizdat, Main Polygraphic Publishing House, 2nd edition, 437 pp, 1952.

USSR/Nuclear Physics - Heavy Fragments, Fission 21 Feb 52

"Appearance of Heavy Fragments of Great Energy During Fission of Nuclei by Cosmic Rays," V. I. Veksler Corr Mem, Acad Sci USSR

82.6, 1952.

"Dok Ak Nauk SSSR" Vol LXXXII, No 6, p 865

As is known, during subject fission one observes stars in which besides relativistic particles fragments of Li, Be, and sometimes even heavier nuclei of C and O fly out from the nucleus with great speeds. It is considered that this phenomenon contradicts existing representations concerning the interaction of nucleons and binding strenghts of

214T69

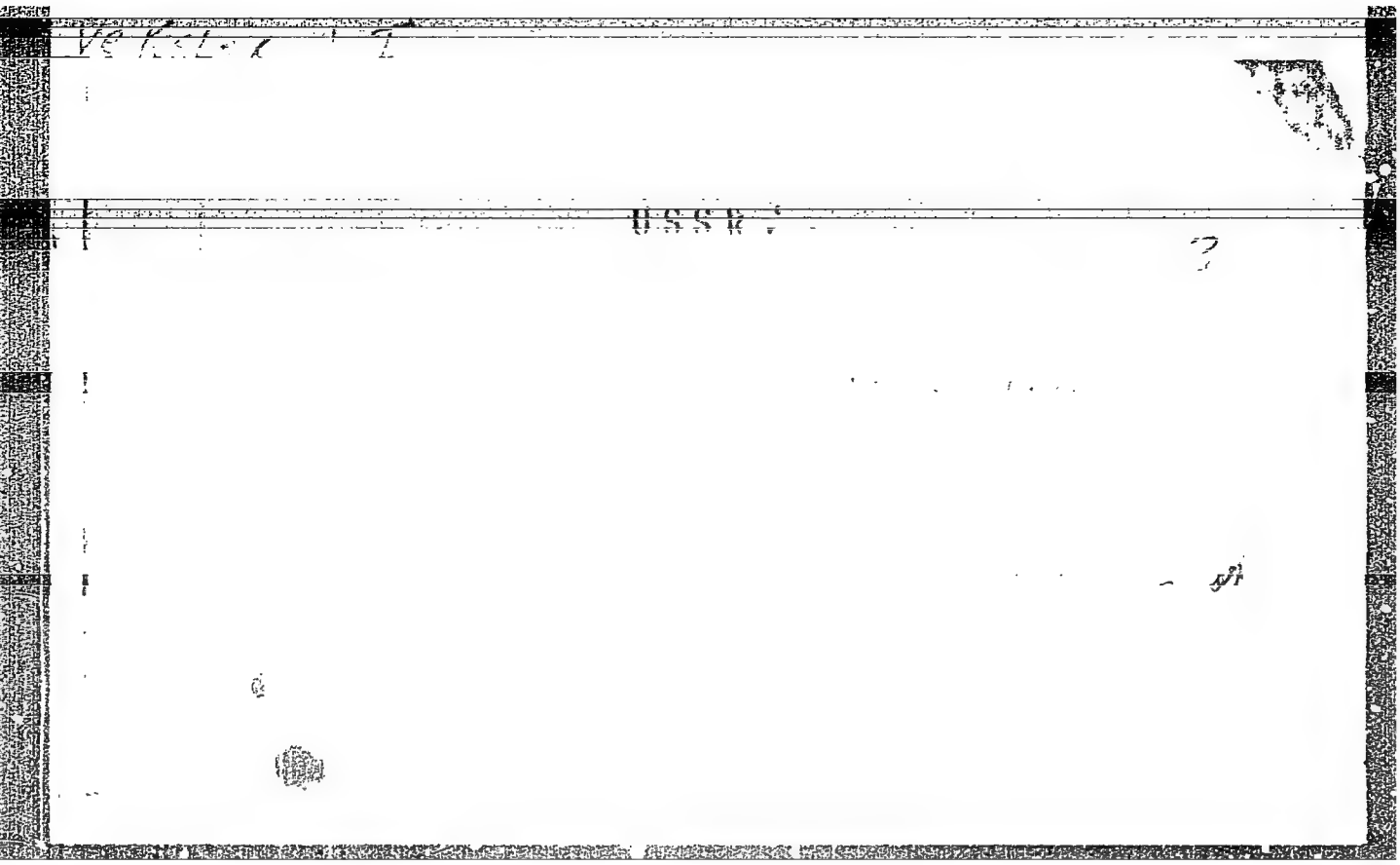
atomic nuclei. The author indicates however, that at least according to the qual side the phenomenon of fragment formation can be assumed on the basis of the meson theory of nuclear forces. Submitted 26 Dec 51.

(CA 47 no.15:7341 '53)
(PA 56 no. 667: 5012 '53)

214T69

VEKSLER, V. I.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859310003-1"



S/058/60/000/004/001/016
A003/A001

Translation from: Referativnyy zhurnal. Fizika, 1960, No. 4, p. 24, # 7785

AUTHORS: Burshteyn, E.L., Veksler, V.I., Kolomenskiy, A.A.

TITLE: The Stochastic Method for Accelerating Particles 19

PERIODICAL: V sb.: Nekotoryye voprosy teorii tsiklicheskikh uskoriteley, AN SSSR, Moscow, 1955, pp. 3-6

TEXT: The stochastic method of particle acceleration is briefly reviewed. It is assumed that the charged particle passes consecutively through a series of accelerating gaps, to which an electric voltage variable in time is applied; at the same time the phase of the accelerating voltage at the moment of the particle passage is a random value. In the calculations it was assumed, for simplicity's sake, that the accelerating voltage takes only two values $+V_0$ and $-V_0$. Under these conditions the probability W of the acceleration of the particle to an energy of $E_k = keV_0$ is determined, where k is an integer. The value of W proved to be

Card 1/2

S/058/60/000/004/001/016
A003/A001

The Stochastic Method for Accelerating Particles

$W_k = eV_o/2Ek$. The possibility of a stochastic process of acceleration in cyclic accelerators is pointed out.

Ya.M.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

VEKSLER, V. I.

"Accelerators of Atomic Particles" published by the "Popular Science Series" of the Academy of Sciences of the USSR, Moscow, 1956, Press.

This book contains a scientific study of the motion of loaded particles in magnetic field and of the means for increasing the limit of possible energies. Different accelerators are analyzed.

SO: D545558

VEKSLER, V., BLOKHINTSEV, D., and POMERANCHUK, B.

"Important Problems of Modern Physics," a chapter from the book Problems in the Utilization of Atomic Energy, the second revised edition of a collection of articles, published in 1956, Moscow, USSR (Pr.Sb.)

VEKSLER, V. I. Cor. Mbr. AS USSR

"The Accelerators (uskoriteli) of Atomic Particles," edited by D. V. Skobaltsyn, Acad Sci USSR, 1956.

Describes new achievements of Soviet physics.

Yellow book, CC 12, 2 Mar 56

VEKSLER, V.I.

Principles of charged-particle acceleration. Atom.energ. no.1: 75-82 '56. (MLRA 9:8)

(Particle accelerators)

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1508

AUTHOR VEKSLER,V.I., EFREMOV,D.V., MINC,A.L., WEJSBEJN,M.M.
BODOP'JANOV,F.A., GAŠEV,M.A., ZEJDLIC,A.L., IVANOV,P.P.,
KOLOMENSKIJ,A.A., KOMAR,E.G., MALYŠEV,L.F., MONOSZON,N.A.,
NEVAZSKIJ,I.CH., PETUCHOV,V.A., RABINOVIC,M.S., RUBČINSKIJ,S.M.,
SINEL'NIKOV,K.D., STOLOV,A.M.

TITLE The 10 BeV Synchrophasotron of the Academy of Science in the USSR

PERIODICAL Atomnaja Energija, 1, fasc.4,22-30 (1956)
Issued: 10 / 1956

A short survey of the most important parameters and components of this accelerator is given. At first the share taken by various institutes in the development and construction of the accelerator is dealt with. The equipment of the accelerator is ready, and final work is in the act of being performed. The frequency of the accelerating voltage is modified in a manner that is proportional to the velocity of the protons (autophasing). The annular magnet consists of 4 quadrants separated by straight intervals of 8 m length (with an average diameter of 28 m). One of these intervals contains a device for the introduction of the particles, two others contain the accelerating electrodes. One of the intervals serves as an outlet for the particles. The photons are previously accelerated by means of a linear accelerator of from 8,5 to 9 MeV, after which they pass through a straight stretch of 10 m length and are then introduced into the chamber of the synchrophasotron after a revolution of 75°. The orbit fluctuates slowly round the respective immobile equilibrium orbit passing

through the center of the accelerating chamber and the particles perform rapid fluctuations round the respective orbit. In the case of a relative error of the frequency of ± 0,1% the radial shifts of the particles can attain $\Delta r = \pm 6$ cm. The amplitude of the radial phase oscillations was damped from 50 cm at the beginning to 1 cm at the end. A domain which is free from resonance was acertained. On the other hand the resonances with free oscillations, which are extremely dangerous in connection with the process of acceleration may in some cases be used for the improvement of the effect produced by the injection. Several problems connected with the construction of the accelerator are mentioned.
The electromagnet and its feed system. A system based upon the accumulation of energy in working loads serves the purpose of feeding the electromagnet. After the maximum field strength of 13.000 Ørstedt is attained, the energy accumulated in the electromagnet is now transformed back into kinetic energy of working loads by the synchron machines which now act as motors. The main parameters of the system are: Maximum capacity 140.000 kVa, maximum amperage 12.800 a, maximum energy 11.000 V, four aggregates with parallel operation, 96 valve ignitors.
The vacuum system is based upon the two-vacuum system with an inside high vacuum chamber and exterior pre-vacuum chamber. In conclusion the high frequency system as well as the control of the injection processes and of the acceleration of the particles are discussed.

INSTITUTION:

VEKSLER, V. I.

Category : USSR/Nuclear Physics - General Problems C-1

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 5735

Author : Veksler, V.I.
Title : At the Conference of the American Physicists.

Orig Pub : Vestn. AN SSSR, 1956, No 8, 63-65

Abstract : No abstract

Card : 1/1

NESMEYANOV, A.N.; TOPCHIYEV, A.V.; KURCHATOV, I.V.; SKOBEL'TSYN, D. .; KAPITSA, P.B.; IOFFE, A.F.; VINOGRADOV, A.P.; EHRENBURG, I.G.; TIKHONOV, N.S.; FADEYEV, A.A.; FRANK, I.M.; VEKSLER, V.I.; KORNEYCHUK, A.Ye.; POPOVA, N.V.; LEBEDEVA, Z.A.; VASILEVSKAYA, V.L.; PETROVSKIY, I.G.; ALEKSANDROV, A.D.; ARTSIMOVICH, L.A.; MESHCHERYAKOV, M.G.

Irene Joliet-Curie; obituary. Vest.AN SSSR 26 no.4:73-72 Ap '56. (Joliet-Curie, Irene, 1897-1956) (MIRA 9:7)

VEKSLER, V.I.

AUTHOR: See Table of Contents

TITLE: Particle Accelerators (Uskoriteli elementarnykh chastits) Supplement Nr 4 to the Journal "Atomnaya energiya," 1957

PUB. DATA: Atomizdat, Moscow, 1957, 91 pp., 9200 copies

ORIG. AGENCY: None given

EDITOR: Chief Ed.: Fedorov, N. D.; Lit. Ed.: Artemov, A. I.; Tech. Ed.: Popova, S. M.; Corrector: Sidorova, G. V.

PURPOSE: This collection of articles is meant for specialists and workers in the field of cyclic and linear particle accelerators.

COVERAGE: This supplement to "Atomnaya energiya" presents papers hitherto unpublished, or published in part only. Some of these articles were read at scientific conferences. The subject matter of all of them is the acceleration of elementary particles in various accelerators.

Card ~~1/6~~

Particle Accelerators (cont.)

TABLE OF CONTENTS: From the Editor 4

Veksler, V. I.; Kolomenskiy, A. A.; Petukhov, V. A.; Rabinovich, M.S. Physical Principles of Operation of the 10-Bev Proton-synchrotron (Fizicheskiye osnovy sooruzheniya sinkhrofazotrona na 10 Bev) 5

This proton synchrotron was assigned to the United Institute of Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy), and was put into operation in April, 1957. Other data used in this article were obtained from the 180-Mev proton-synchrotron operated by the Institute of Physics of the AS USSR.

Zhuravlev, A. A.; Komar, Ye. G.; Mozalevskiy, I. A.; Monoszon, N. A.; Stolov, A. M.

Magnetic Properties of the 10-Bev Proton-Synchrotron at the United Institute of Nuclear Research (Magnitnyye kharakteristiki sinkhrofazotrona na 10 Bev Ob"yedinnennogo instituta yadernykh issledovaniy) 15

Card 2/6

Particle Accelerators (cont.)

High-energy electron synchrotrons, which are characterized by the presence of intensive relativistic electromagnetic radiation of electrons in the magnetic field of the accelerator, are described. There are 2 figures, 1 table, and 15 references, 14 of which are USSR.

Ado, Yu. M.; Cherenkov, P. A.

Incoherent Electron Radiation in a Synchrotron and Certain of Its Applications in the Study of Accelerator Operation (Nekogerentnoye izlucheniye electronov v sinkhrotrone i nekotoryye primeneniya ego dlya issledovaniya raboty uskoriteleya) 49

The relatively strong radiation of electromagnetic oscillations in a high-energy electron synchrotron (up to 100 Mev and more) is discussed. There are 5 figures and 14 references, 7 of which are USSR.

Belyak, A. Ya.; Veksler, V. I.; Kamunnikov, V. M.; Cherenkov, P. A.; Yablokov, B. N.

Characteristics of the 280-Mev Synchrotron in Operation at the Institute of Physics of the AS USSR (Osobennosti sinkhrotrona na 280 Mev ФИАН SSSR) 57

Card 4/6

Particle Accelerators (cont.)

The synchrotron at the Institute of Physics was put into operation in 1949. This article gives design and operational data, and describes improvements which increased the quality of the synchrotron's performance. Pisarev, V. Ye., and Shorin, K. N. worked on the improvement of the magnetic characteristics of the accelerator. Kotel'nikov, N. G. contributed to the development of the acceleration chambers. Yakushkin, V. Ye. and Minayev, V. F. worked on the development of the injection gun. Usova, I. N. performed the intensity measurements. V. A. Skorik contributed to the development of oscillators. V. S. Shirchenko was occupied with the stabilization of the upper limit of the γ-radiation spectrum. V. I. Travinskiy developed a method for coating the cavity resonators with a conducting layer. There are 4 tables, 12 figures, and 6 references, 1 of which is USSR.

Lobanov, Yu. N., Petukhov, V. A.

Experimental Principle of the Theory of Particle Capture in Betatron Acceleration (Eksperimental'nyye osnovy teorii zakhvata chastits v betatronnyy rezhim uskoreniya)

73

Described is research on electron capture in a betatron performed at the Second Scientific Research Institute of Physics of the Moscow State

Card 3/6

VEKSLER, V.I.

28(5);21(0);6(6) PHASE I BOOK EXPLOITATION SOV/1458

Dosyahnennya suchasnoyi fizyky, vyp. 5 (Achievements of Modern Physics, nr. 5) Kiyev, Radyans'ka shkola, 1957. 310 p. 3,500 copies printed.

Compilers: O.Z. Zhmuds'kyy, Candidate of Physical and Mathematical Sciences, Docent, and M.Ye. Hurtovyy; Ed. (Title page): O.Z. Zhmuds'kyy, Candidate of Physical and Mathematical Sciences, Docent; Ed. (Inside book): A.S. Kryvosheya; Tech. Ed.: N.K. Volkova.

PURPOSE: This book is intended for physics students at vuzes.

COVERAGE: The 22 articles in this collection have been translated into Ukrainian from Russian language articles which originally appeared in Atomnaya energiya, Priroda, and other Soviet periodicals. They were written by 23 physicists, including such eminent scholars as Kurchatov, Blokhintsev, and Veksler. The book attempts to provide a simple account of some of the recent Soviet advances in nuclear research and in the industrial application of nuclear energy. In discussing the present-day exploitation of atomic power and its potential for peacetime uses, some authors also outline a guide for future goals. Each

Card 1/5 3

chapter deals with one particular problem and gives a concise statement of the modern Soviet theory about it. Among the central topics dealt with in the book are power generation through nuclear reactors, physics and the application of semiconductors, the development of new high-energy particles and radioelements, and changes brought about in production engineering by the ever increasing use of radioactive substances. Radiation effects in the auroral zone of the Arctic, television transmitters aboard Earth satellites, and technological aspects of high-pressure phenomena also come within the scope of this collection. The book contains diagrams, photographs, and a few scattered Soviet references in the text.

TABLE OF CONTENTS:

From the Editors 2

Kurchatov, I.V. Some Problems in the Development of Nuclear Power Generation in the USSR 3

Blokhintsev, D.I., and M.A. Nikolayev. The First Soviet Atomic Power Station and Ways of Atomic Power Production 13

Veksler, V.I. Accelerators of Charged Particles 50

Kurchatov, I.V. Possibilities of Obtaining Thermonuclear Reactions in a Gas Discharge 82

Rodin, S.S. Account of the Discovery of the Antiproton 95

Terlets'kyy, Ya. P. Interchangeability of Elementary Particles 98

Astakhov, O.P. "Strange" Particles [K-mesons and Hyperons] 102

Vaysenberg, A.O. Use of Mesons and Electrons in the Study of the Internal Structure of the Nucleus 105

S/0058/64/000/003/H046/H047

ACCESSION NR: AR4034491

SOURCE: Ref. zh. Fiz., Abs. 3Zh327

AUTHOR: Vekaler, V. I.

TITLE: On the mechanism of interaction between slow positive ions and the surface of a metal

CITED SOURCE: Nauchn. tr. Tashkentsk. un-t, vy*p. 221, 1963, 128-135

TOPIC TAGS: metal surface, positive ion, ion surface interaction, retarding field method, molybdenum

TRANSLATION: Continuing earlier research (RZhFiz, 1962, 7Zh320), the retarding field method is used to measure the maximum energy of Rb^+ and Cs^+ ions scattered by the surface of a Mo target with a temperature of 1400 — 1450K, when the energy of the primary ions is 15 — 25 eV. An installation analogous to that used in the previous work has made it possible to observe an ion current which amounts to 0.1 per cent of the total current of the registered scattered ions. The ions investigated were scattered at 120° relative to the direction of motion of the primary

Card 1/2

ACCESSION NR: AR4034491

ions. The experimental data obtained and the calculations carried out by the author confirm the notion that the Rb^+ and Cs^+ ions are simultaneously scattered by four Mo atoms, on which the influence of other atoms of the lattice is also superimposed at low interaction energies. R. Rakhimov.

DATE ACQ: 10Apr64

SUB CODE: PH

ENCL: 00

Card 2/2

VEKSLER, V.I.

Charged particle accelerators. Dos. such. fiz. no.5:50-81 '57. (MIRA 16:6)

(Particle accelerators)